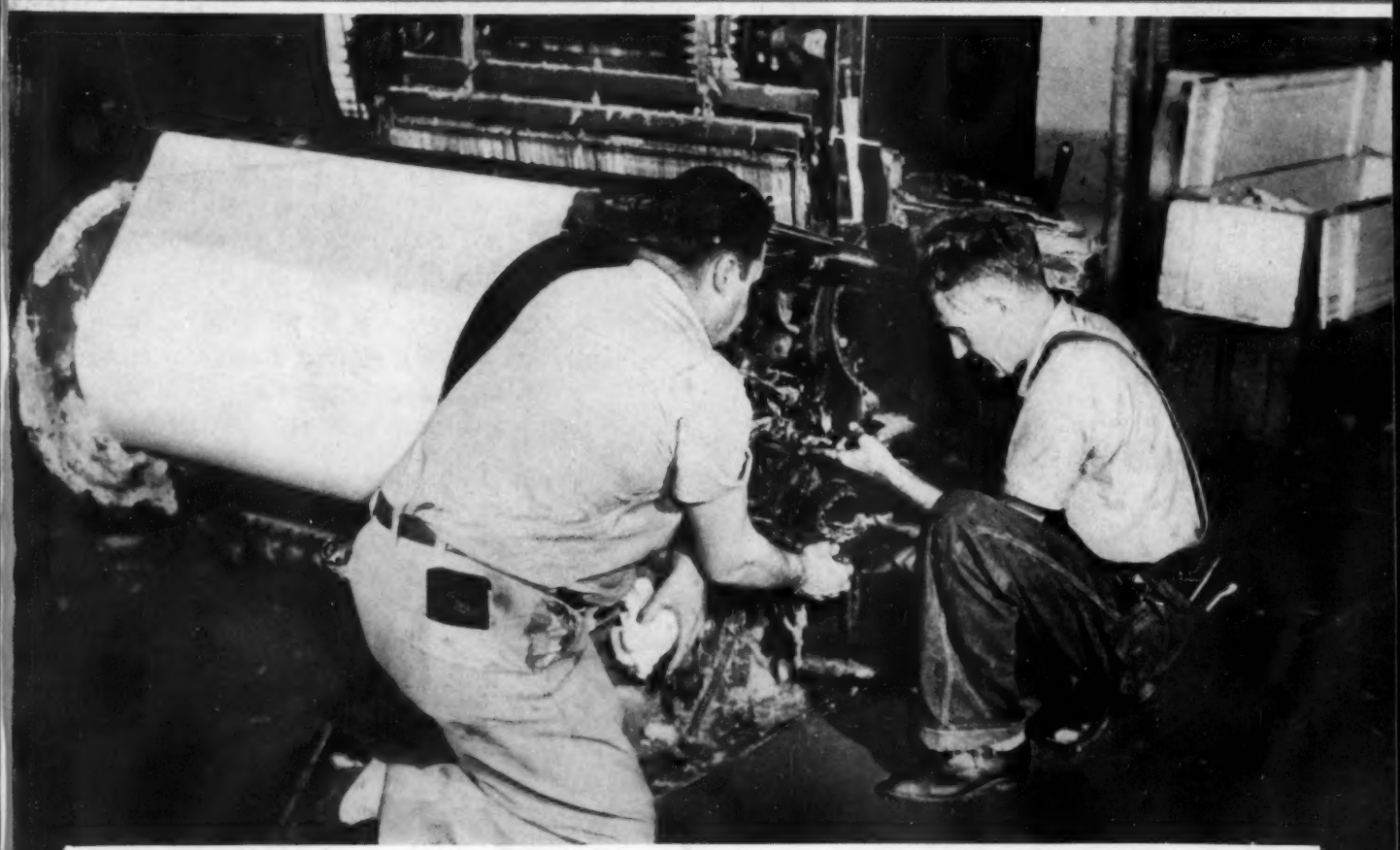
50 CENTS

Textile World

MAY, 1955



IN THIS ISSUE:

Supervisors Have Too Much Work....83
Duties of an Overseer....85
Fashion-Sealed Stockings....89
Loomfixer Training....90
How Bell Makes Top....92
New British Knitting Mill....94
Ends Down in Spinning....95
Mass Testing of Ends....97
Weave-Room Cleaning....98
Heat Exchangers....100
Cotton Research Clinic....102
New Electrical Instrument....102
Effect of Cloth Structure....103
Carding Cleaner....104
Twistless Yarns....104
No-Twist-Yarn Machinery....105
Pima S-1 Evaluated....106
Air-Flow Instrument....106
Hosiery-Knitter Training....107
Materials Handling....108
Misplaced Ends in Cloth....110
Nylon-Carding Production....112
Dyeing Special Fabrics....114
Albany Felt's Machine Shop....116
Production of Raschel Nets....119
New Comber Preparation....120
Packaging at J. P. Stevens....122
Savings on Carpet Stock....125
Rubber Finishing Rolls....126
Drawing-In Machines....129
Synthetics Quality Control....131
Tubular-Knit-Goods Finishing....135
Rayon Shrinkage Control....214
Increase Rubber-Hose Life....234

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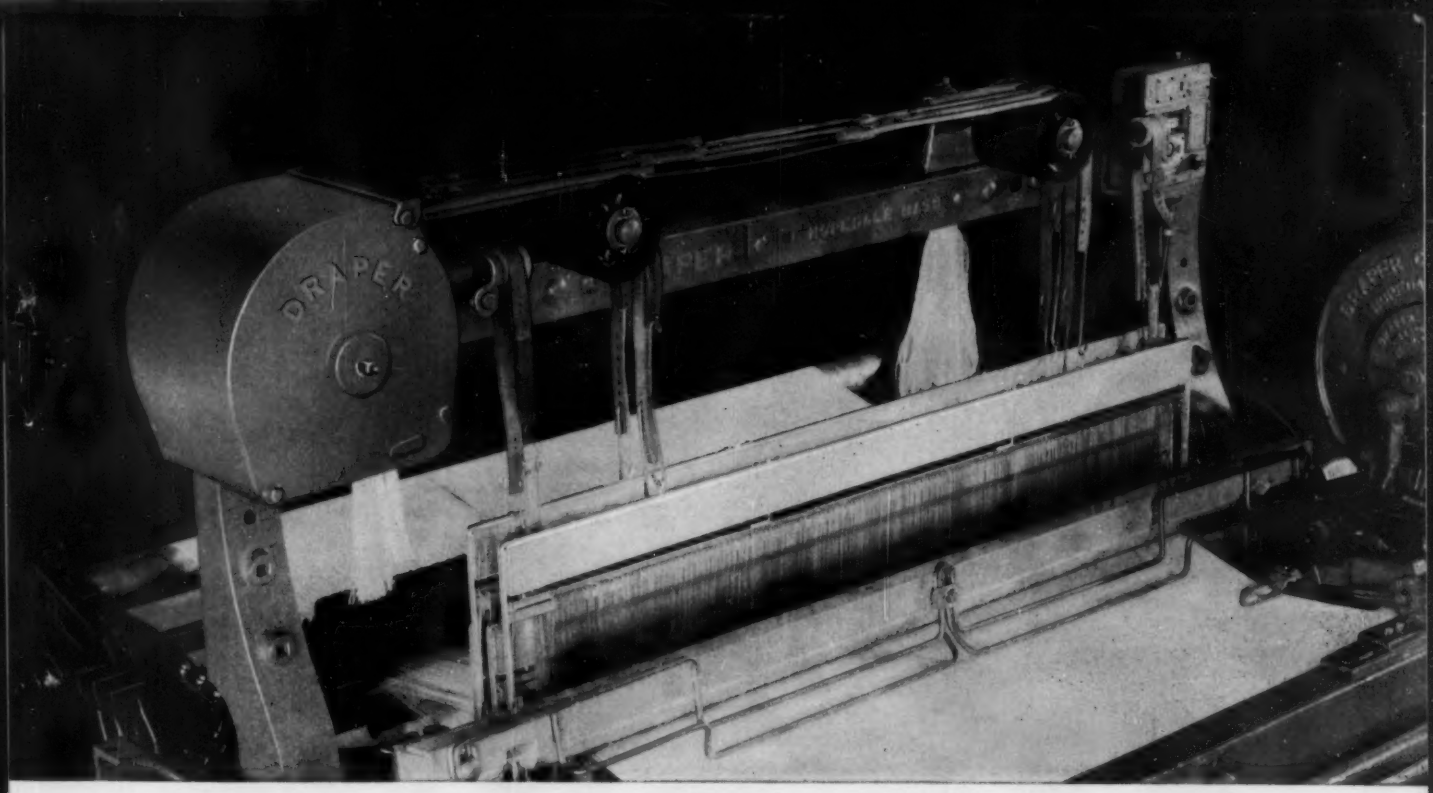

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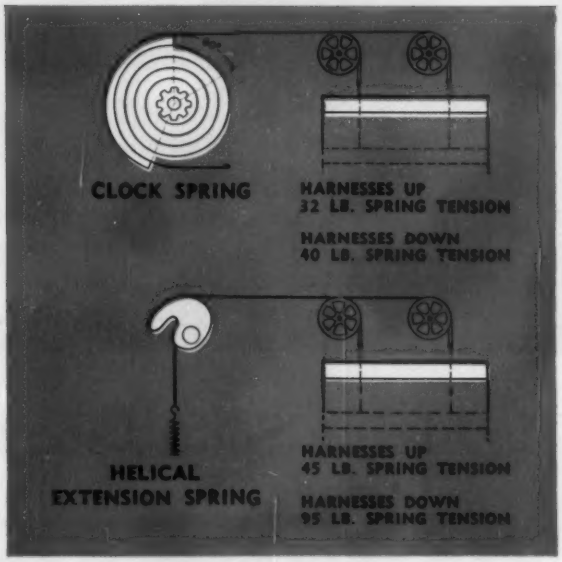
*Patented



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With Helical Spring Top, initial tension is higher and spring tension increases an additional 50 lbs. or 111%.

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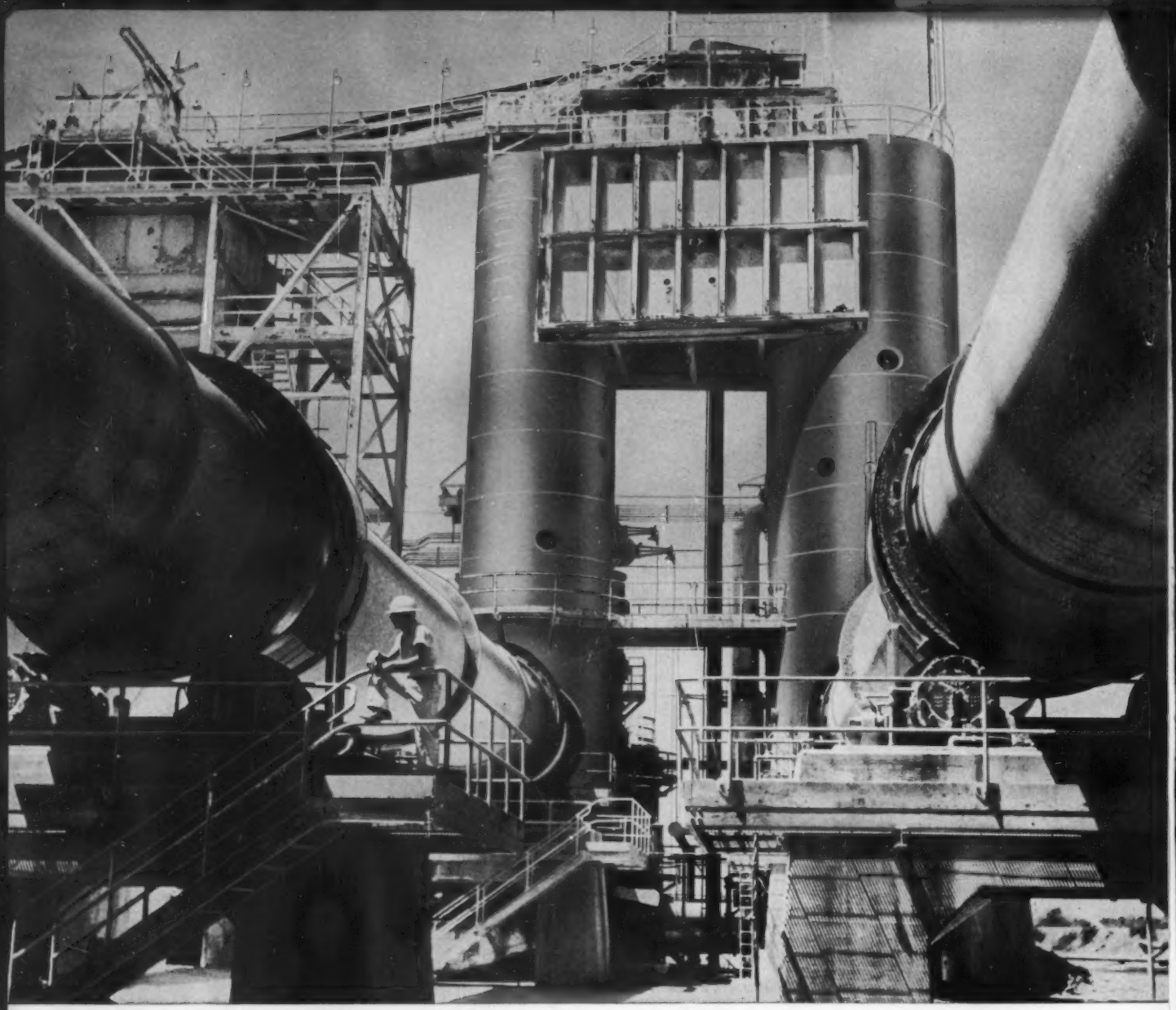

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At *all* Mathieson plants, attention to raw materials helps assure the quality of products. In addition, buyers have the protection of multi-plant production facilities... 2 soda ash plants, 6 caustic soda plants, 5 chlorine plants, 7 sulphuric acid plants, 3 ammonia plants... plus practical technical assistance with materials handling and application problems. When planning current or future chemical requirements, be sure to call on Olin Mathieson. Perhaps you can buy to better advantage from one of America's largest, most diversified producers of basic industrial chemicals.

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PUBLISHED MONTHLY

A McGRAW-HILL PUBLICATION

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DEPARTMENTS

Book Reviews	170
Calendar	236
Editorial	83
Equipment and Supply News	139
Kinks and Short-Cuts	155
Mill Maintenance	222
New Dyes and Chemicals	148
News About Men	248
News About Mills	242
News About Suppliers	238
News of the Month	4
Obituary	251
Pointers for Supervisors	137
Questions and Answers	151
Reader Service	165
Round Table	8
Textile Tickles	151
Trade Literature	166
Advertisers' Index	259

Table of Contents

MAY • 1955
Volume 105 Number 5

KEYED ACCORDING TO READER INTEREST

Feature Articles

SPINNER	WEAVER	KNITTER	FINISHER	ENGINEER			COTTON	SYNTHETICS	WOOL
Y	W	K	F	E	SUPERVISORS Have Too Much Work	83	C	S	W
Y	W	K	F	E	Responsibilities of an OVERSEER	85	C	S	W
		K			Clementon's FASHION-SEALED STOCKINGS	89		S	
	W				LOOMFIXER-TRAINING Program	90	C	S	W
Y					How Bell Makes HIGH-QUALITY TOP	92			W
		K	F	E	New British KNITTING MILL	94	C	S	W
Y					ENDS DOWN in Spinning	95	C	S	
Y					MASS TESTING of Ends	97	C	S	
	W			E	WEAVE-ROOM CLEANING in Filament Mills	98	C	S	W
			F	E	HEAT EXCHANGERS in Finishing Plants	100	C	S	W
Y	W		F		COTTON RESEARCH CLINIC	102	C	S	W
Y					INSTRUMENT Counts Imperfections	102	C	S	W
	W		F		Effect of CLOTH STRUCTURE	103	C	S	W
Y					Experimental CARDING CLEANER	104	C		
Y					TWISTLESS YARNS Show Promise at Bates	104	C	S	
Y					NO-TWIST-YARN Machinery	105	C	S	
Y				E	Improved AIR-FLOW INSTRUMENT	106	C		
Y			F		PIMA S-1 Evaluated	106	C		
Y	W	K	F	E	Training HOSIERY KNITTERS and FIXERS	107	C	S	W
Y				E	MATERIALS HANDLING at American Thread	108	C	S	W
	W				How To Prevent MISPLACED ENDS in Cloth	110	C	S	W
Y				E	NYLON-CARDING Production Doubled	112	C	S	
			F		DYEHOUSE Handles Special Fabrics	114	C	S	
				E	Albany Felt's MACHINE SHOP	116	C	S	W
		K			Production of RASCHEL NETS	119		S	
Y					New COMBER PREPARATION Cuts Waste	120	C		
			F	E	How Stevens PACKAGES Consumer Fabrics	122	C	S	W
Y					32,000 lbs. of CARPET STOCK Saved	125			W
			F		RUBBER FINISHING ROLLS	126	C	S	W
	W				DRAWING-IN-MACHINE Maintenance	129	C	S	W
	W				QUALITY CONTROL in Filament Plant	131		S	
		K	F		How To Finish TUBULAR KNIT GOODS	135	C	S	W
			F		Rayon SHRINKAGE CONTROL	214		S	
				E	9-Point Checklist for RUBBER-HOSE Life	234	C	S	W

Equipment and Supply News

			F		RUG KETTLE	139	C	S	
Y	W	K	F	E	Mechanical STROBOSCOPE	139	C	S	W
Y					Spinnbau CARDS	140	C	S	W
Y				E	Guide for TOW CREELING	140		S	
		K			Flat KNITTING MACHINE	140	C	S	W
			F		Offset SCRAY	142	C	S	W
			F		GUIDER ROLL	144	C	S	W
Y					TENSION DEVICE for Redrawing Machines	145		S	
		K			HOSIERY INSPECTING Machine	145		S	
		K			Hosiery-Machine STOP MOTIONS	146	C	S	W
Y					TWISTER GUIDES	146	C	S	W

Kinks and Short-Cuts

			F		How We Reduced FABRIC BOW	155	C	S	W
Y					Nippers Help Measure STAPLE LENGTHS	155	C		
	W				Foam Rubber Prevents CREASES IN CLOTH	156	C	S	W
Y					Bag Keeps SPINNING WASTES Separate	156	C		
		K			Improve HOSIERY Slack Course	157	C	S	W
				E	TIN CAN ON DRILL Prevents Dirty Goods	157	C	S	W
		K	F		SCRAY STOP MOTION Saves One Man's Labor	158	C	S	W
	W				Stop JERK-BACKS With Spring-Loaded Wire	159	C	S	W
Y				E	Aids to WOOL-FANCY Operation	159			W
			F	E	How To Find VOLUME in Cylindrical Tank	160	C	S	W
	W				WEAVE-ROOM CHART Reduces Cloth Seconds	161	C	S	W
				E	GAUGE Sets Steel Rolls	162	C	S	W

Textile World

NEWS of the MONTH

Walsh-Healey Restricted

A Federal District Court in Washington, D. C., has sharply restricted the authority of the Secretary of Labor to set minimum wages for work on government contracts under terms of the Walsh-Healey Act. Judge Holtzoff held that the Secretary cannot set nationwide rates for the cotton textile industry: the pay levels must be fixed at rates being paid in a particular locality.

The law has been used to trim differentials between wages in the North and South. If the order survives appeal, it wipes out the major effects of the law. In any case, the ruling will make enforcement of new determinations impossible until the issue is settled.

Several hours later, Judge Holtzoff reversed his decision and made his action applicable only to the plaintiffs in the court action. Plaintiffs must post bond for 30 days to cover Walsh-Healey wages in case the Government appeal is upheld.

The Worsted Situation

In his annual report to stockholders, President Harold J. Walter of Bachmann Uxbridge summed up the situation faced by worsted mills:

► Worsted mills are still faced with a serious overcapacity in the face of a shrinking market. Worsted operations will become more concentrated in the South, but lower-cost woolen operations will be continued in the North.

► The trend toward casual clothes has cut the market for regular-weight worsted suits. However, there are three reasons for optimism: (1) there is some evidence of a return to dressy clothes, (2) worsted-type fabrics are being developed for the casual and sportswear field, and (3) there is renewed consumer appreciation of the advantages of wool and wool blends over 100% synthetics.

Strictly From Hungary

Two textile developments are reported from Hungary, an Iron Curtain country:

1. A shuttleless loom has been developed by the Light Machine Industry Board. According to reports, the device that takes the place of the shuttle can be fitted to old looms for about $210.

2. Ultrasonic equipment for washing and drying has been developed by a technician who works for Obuda Textile Works. The washing machine is a magnetic vibrator that produces 5,000 to 6,000 vibrations per second in the water. In the drying machine, a revolving device on an electric motor creates 20,000 to 25,000 vibrations a second. Drying fabric takes a few seconds. A dye machine using the same principle is under development.

What They're Saying

► At the graduation of Cone Mills Vocational Night School, Marion Heiss, vice president, told the graduates: "We in the textile industry have reached a state in every mill department in which there should be a definite know-how and not just a rule of thumb for every phase of operation."

► At the final symposium on textiles at Brooklyn Tech, a Du Pont man, Winfield W. Heckert, warned that textile producers as well as fiber producers must explore new fiber frontiers if the textile industry is to stop the downward trend of the textile share of consumer dollars. Dr. Jules La Barthe of Mellon Institute warned that textile producers must do a better job of policing the use of their fabrics by clothing manufacturers, particularly in reference to advertising claims.

Fiber News

► Chemstrand nylon yarn in 15/3 den. is available from The Chemstrand Corp. The yarn adds strength and wearability to nylon hosiery. By the use of twist, the yarn can achieve a dulling effect without using dull yarns, and it can be used in full-fashioned and seamless hosiery as well as in the stretch type. Also, interesting new effects in hand and appearance can be obtained in tricot. In woven fabrics, the new yarn can be used to create novelty weaves. Price: $6 per lb.

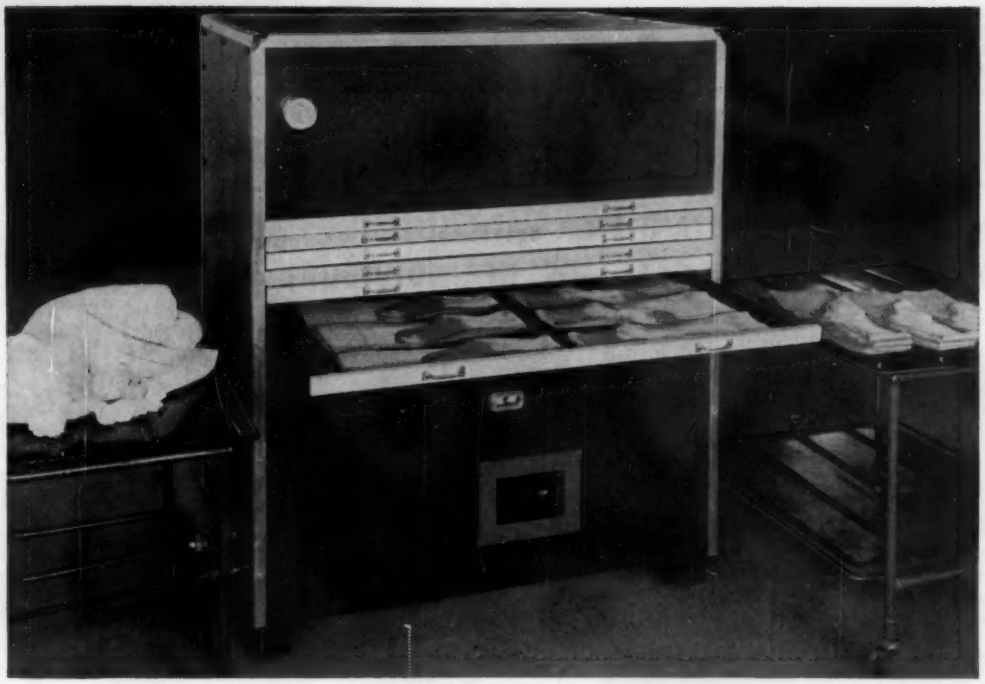
► The U. S. Dept. of Agriculture has proposed changes in the official standards for wool that would add two new grades and would put the standards on the basis of average fiber diameter, as measured in microns. The proposed grades correspond to the grades recently adopted for wool top. The official standards would provide specifications for 14 grades, 80s to 36s, inclusive; the new grades are designated as 62s and 54s.

► Recommendations to strengthen the USDA's cotton-research program were made by the Cotton and Cottonseed Research and Marketing Advisory Committee at its March meeting. Recommendations for utilization research: Search for new textile products by replacing hydroxyl groups in cotton cellulose, and work to improve smoothness of yarns and fabrics.

► A program of expanding the in-

TEXTILE WORLD. Published monthly, with an additional issue in September, by McGraw-Hill Publishing Co., Inc. Executive, Advertising, and Subscription Offices: 330 W. 42nd Street, New York 36, N. Y. Editorial Office: 201 E. Coffee Street, Greenville, S. C. Publication Office: 99-129 North B'way, Albany 1, N. Y.; entered as second-class matter at the Post Office in Albany, N .Y. **For subscriptions,** write to: TEXTILE WORLD Subscription Service, 330 West 42nd Street, New York 36, N. Y. **State company and position. Subscriptions are solicited only from executives, engineers, and technicians in textile manufacturing or finishing plants.** Single copies 50¢. United States and Possessions and Canada, $3 for 1 yr.; $4 for 2 yrs.; and $5 for 3 yrs. Other Western Hemisphere and the Philippines, $10 for 1 yr.; $16 for 2 yrs.; and $20 for 3 yrs. Other Countries, $15 for 1 yr.; $25 for 2 yrs.; and $30 for 3 yrs. Printed in USA.

The new Turbo Boardless Dryer. Capacity is 3 dozen pairs per drawer. Cabinet measures 48x36x54 inches.



NOW . . . Turbo "gentle as a lamb" boardless drying

For years, Turbo Finish Boarding Machines have been famous for their "gentle as a lamb" action.

Now Turbo announces a new Boardless Dryer in the "gentle tradition" for manufacturers who want a substitute for final boarding. The new Turbo Boardless Dryer makes possible the economies inherent in this method of finishing, but with a softer hand and more pleasing finish than ever before possible without use of boarding forms.

Drying is done in a six-drawer cabinet, each drawer being loaded and unloaded in rotation, thereby making the operation a continuous one. This arrangement allows for a comparatively long drying cycle per drawer with no time lost waiting for drying to be completed. Comparatively low drying temperatures protect the delicate fabrics. Heated air is gently circulated through the drawers — no high-pressure air volume. Stockings remain smooth and wrinkle-free, ready for pairing and boxing.

Production up to 500 dozen pairs of stockings is possible in 8 hours. Only 12 square feet of floor space is required . . . steam consumption is unusually low . . . there are no appreciable heat losses . . . unskilled labor can easily operate the unit.

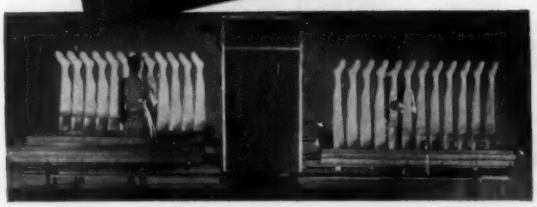
Complete information is yours for the asking. Write today.

TURBO SINCE 1929

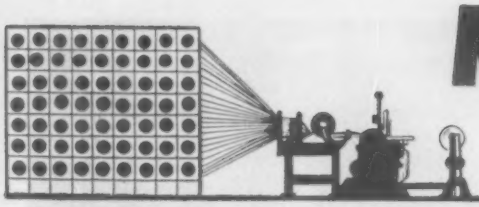
TURBO MACHINE COMPANY, LANSDALE, PENNA., U.S.A.

Southern Representative: F. W. Warrington Co., Charlotte, N. C.

Manufacturers of precision Heat-Setting Machinery, Crimpers, Crimp Setting Equipment, and Tow Processing Equipment



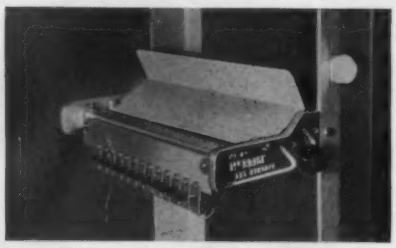
Turbo F-48 Standard Finish Boarder used by leading hosiery manufacturers for high quality finishing. Accommodates 48 forms. All action, timing and temperature controls are automatic. Drying is accomplished in 60 to 90 seconds. Production is 250 dozen pairs in 8 hours, with two operators.



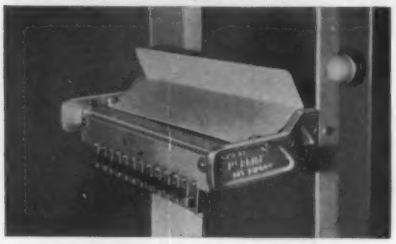
McBRIDE CREEL CORNER

NOW — McBRIDE INSTANT-STOP WITH SELECTIVE CONTROL PERMITS INSTANT CAST-OUT OF INDIVIDUAL ENDS

Stop Motion in operating position. Colored button controlling entire bank is on; 4 individual switches controlling 4 drop wires on off position for 4 inactive ends. Note ends may remain threaded through drop wires.



Stop Motion cover in raised position to show details of new individual controls. All cast-out switches are in on position. Signal light is blinking indicating that locking bar is up for threading-in position.



Entire bank of Stop Motions cut-out by master rod switch on right. (Yarn here removed from stop motion to allow cover to be raised and details shown.)

The flick of a switch is all it takes to cast out individual ends. Inactive ends are promptly reactivated because the yarn stays right in the drop wire. There's no time-consuming, cumbersome tying-up of drop wires for inactive ends. Now any individual end—or an entire bank of ends—may be cast out or reactivated by a simple switch. The 1955 McBride Instant-Stop has been completely redesigned for greater *durability, flexibility, accessibility.* Drop wire is now rigidly held yet still gives instant action.

Three-Way Signal Light

McBride Instant-Stop may be equipped with a three-way signal light with signals as follows:

1. Light out—creel operating satisfactorily.
2. Light on—indicates broken end.
3. Light blinking—Stop-Motion in threading-in position.

Lights may be positioned on sturdy, hinged light channel to make them visible to warper, creeler, or both.

Instant-Stop is available in three sizes:

Supersensitive for light yarns, as low as 12 denier nylon.
Standard for intermediate weight yarns.
Heavy Duty for tire cord, asbestos, and wire.

LET McBRIDE STUDY YOUR WARPING SITUATION. YOU MIGHT BE SURPRISED WITH THE COSTS YOU CAN SAVE, THE IMPROVED QUALITY IN THE WARPS YOU PRODUCE.

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dustrial applications of fibers in nonwoven fabrics, low-pressure laminates, air and liquid filters, acoustical, heat-insulation, and batting products has been launched by Celanese Corp. of America. A pilot plant is going up at Burlington, N. C.

► Textile fibers made from volcanic lava are being produced experimentally in Italy by Atelana Co., S. Teresa Riva, Messina. Fabrics made from the yarn will withstand up to 1,100° C. and are unaffected by acids and alkalis.

Mill Developments

► A method of spinning yarn that increases the strength of fabrics 5 to 10 times has been patented by two Canadian government scientists working in the defense department. Existing equipment can be modified for the spinning, which seems to be a variation of the core-yarn principle.

► A central cotton-buying agency with the over-all responsibility for the purchase of all raw cotton for Burlington Mills and Pacific Mills has been formed by Burlington Industries, Inc., with headquarters in Cramerton, N. C.

► Fiber content is the most important factor controlling a fabric's pleat acceptance and retention, according to John M. Roughan of American Viscose Corp. The ideal fabric for pleating should contain the same amount of thermoplastic fiber in both warp and filling.

► Filon d'Or, a felt, with Lurex bonded into the surface, in various patterns and designs, is being manufactured by The Felters Co.

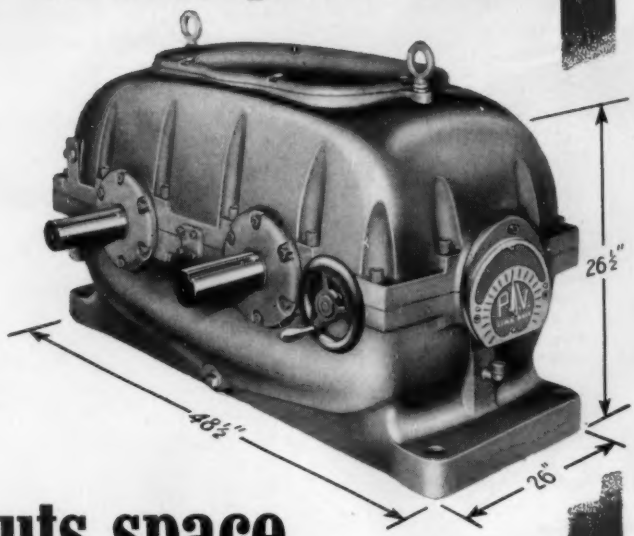
► Erlanger Mills has completed 2-million manhours of operations with only four lost-time accidents. A safety contest between the Erlanger units, N. C. Finishing Co., Leward Mills, and Alexander Mills, is based on 40% for safety record, 40% for housekeeping, and 20% for safe working conditions.

► A new mildew-resisting and waterproofing material, called Superseal, has been developed by B. F. Goodrich Co. for fire hose.

► The State of California started operation of a cotton mill at San Quentin Prison in March. Production goes to state institutions. Only California cotton is used in the mill. About 600 inmates turn out sheeting, denim, chambray, terry cloth, huck-towel cloth, and broadcloth.

CONTINUED ON PAGE 8

LINK-BELT 25-hp P.I.V. Variable Speed Drive



cuts space requirements up to 50%

LINK-BELT gives you all the advantages of positive, stepless speed changing in high horsepowers, too

ONE of the great advantages of P.I.V.'s positive, all-metal drive is dramatically illustrated by the Size 6. Compared to other speed changers in this hp range, it saves *70 cu. ft. of space!*

In addition, infinitely stepless regulation means you can select the exact speed you want—from maximum to minimum. Unaffected by temperature and atmospheric conditions, all moving parts are totally enclosed and splash-lubricated.

The Size 6 P.I.V. is built in three types: The basic drive . . . with input *or* output gears . . . with input *and* output gears. All are available in a wide range of ratios, 20 to 25 hp.

Get the facts on the Size 6 from your nearest Link-Belt office or distributor. You'll receive a copy of Folder 2374. And for information on the complete P.I.V. line, ask for Book 2274.

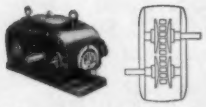
LINK-BELT P.I.V. VARIABLE SPEED DRIVE

13,594

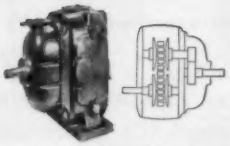
LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

Two Link-Belt HGG-6 P.I.V.s control the speed of reciprocating pumps. With both input and output gears, speeds range from 46.5 to 140 rpm.

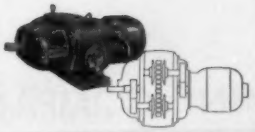
4 OF 16 P.I.V. TYPES
HORIZONTAL OR VERTICAL MOUNTINGS
1/2 TO 25 HP—
RATIOS TO 6:1



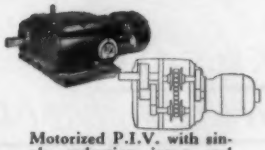
Basic, Positive, Infinitely Variable (P.I.V.) Speed Drive.



P.I.V. with single reduction input or output helical gears.



Motorized P.I.V. with single reduction input and output helical gears.



Motorized P.I.V. with single reduction input and double reduction output helical gears.

MODERN DYEHOUSE EQUIPMENT

THE DEPENDABLE KWG SKEIN DYEING MACHINE

KWG Double Reel Skein Dyeing Machine —all stainless steel unit built in capacities to 1000 pounds.

FOR QUALITY DYEING

WITHIN INCREASED BUT MORE NORMAL TEMPERATURE and PRESSURE LIMITS

Perfection in dyeing—for natural and the new synthetic fibers—is yours with KWG Skein Dyeing machines. Rugged construction . . . improved 'Ferrous-Wheel' performance . . . give you the penetration and evenness of color—the permanence of tone—for that extra measure of sales appeal—without concern for costly high-temperature, high-pressure methods. Dual-operations possible including scouring, dyeing and shrink-proofing, or scouring, bottom bleaching and dyeing of pastel shades.

You can point the way to extra sales . . . extra profits . . . today by writing Klauder Weldon Giles. A KWG representative will be glad to survey your needs. If necessary, he'll design special equipment to your specifications. There's no obligation.

Klauder Weldon Giles MACHINE COMPANY

ADAMS AVENUE & LEIPER STREET • PHILADELPHIA 24, PA.

►A casement cloth called Tussore won the 1955 Trail Blazer Award of the National Home Fashions League, Inc., as an "outstanding advancement in the development of man-made-fiber combinations for decoration fabrics." Offered by J. H. Thorp & Co., the fabric is a blend of Dynel, saran, and Fortisan.

►Textron American, Inc., has announced an intention to use half its total capital in textiles and the other half in nontextile diversification.

Letters From Readers

What's on your mind?

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 330 W. 42nd St., New York 36, N. Y.

Reducing Card Waste

Dear Editor:

The article "How To Reduce Card Waste" by Bogdan [TW, March, '55, p. 87] is outstanding in the details covered and the clear presentation of the test results. It is sure to make many of us realize more fully the quality and production potentials of the cotton card with ideal conditions, settings, and speeds. Certainly the fine-yarn men would like to see Mr. Bogdan and N. C. State give the same research treatment to the longer cotton staples.

All these research findings can be of little value in improving card quality, increasing production, or reducing

For more information, write direct or use Reader-Service post card.

it's a matter of

design

plus inbuilt quality

After running many tests under actual mill conditions, using several possible designs of the SG-1 Bobbin, we now know that this ultimate design of the

SG-1 GWALTNEY wooden bobbin

fulfils every requirement for the satisfactory spinning of yarns on Gwaltney frames.

Let's take a good look at these outstanding advantages

BETTER RUNNING	Tapered wall accounts for this; also for smoother "take-off" at spooler.
LIGHTER WEIGHT	1½ oz. less than straight wall bobbin.
STRONGER	The smaller top bore retains correct wall thickness.
BALANCED	The center of gravity is the centerline of the bobbin.
SELECTED STOCK	meets the exacting SG-1 requirements.
CORRECT FINISH	assures freedom from trouble (inside and out!)

U S BOBBIN & SHUTTLE CO.

We would appreciate an opportunity to demonstrate the merits of this bobbin to you.

Manufacturing Plants

LAWRENCE, MASS. • GREENVILLE, S. C.

General Sales Office LAWRENCE, MASS.

Southern Division Headquarters: 428 Birney St., GREENVILLE, S. C.

BIRMINGHAM: Young & Van Supply Co.

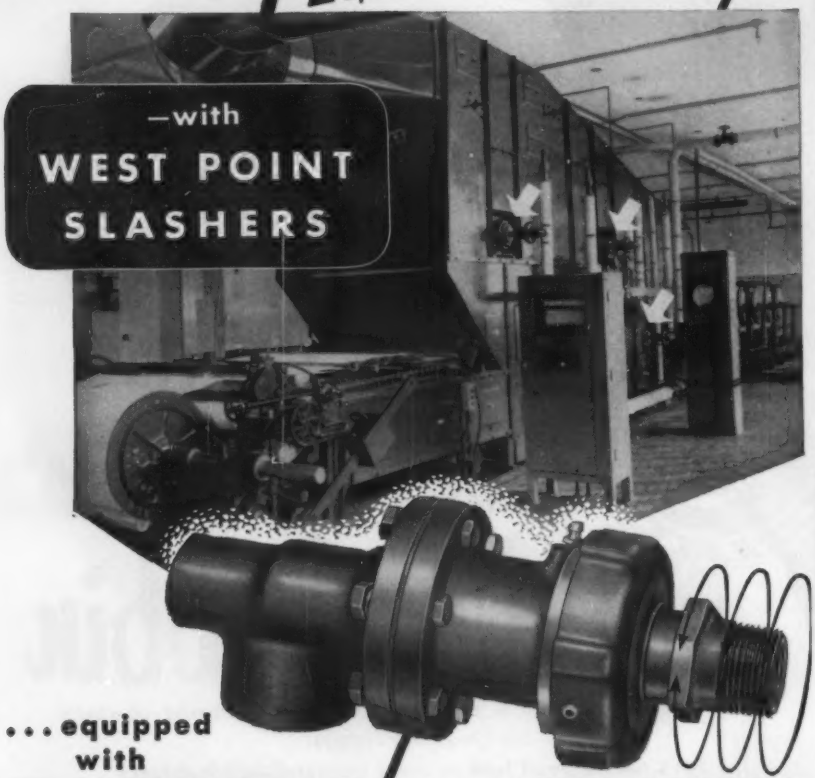
Dallas: O.T. Daniel, Textile Supply Co. LOS ANGELES: E.G. Paules, 1762 W. Vernon Ave.

THE SEAL OF QUALITY AND SERVICE

US

SINCE 1857

OUTSTANDING PERFORMANCE



. . . equipped with

BARCO *Revolving* JOINTS

- Trouble-free Performance! Thanks to long lasting "CTR" V-Type Seal Rings—a Barco Development.
- Free-Floating, Low Torque Installations. Cuts Power Costs up to 50%.
- Unexcelled Ability to withstand Vibration and Hard Usage.
- Better Temperature Control where steam is used for heating rolls due to better circulation.
- Low Maintenance; No Adjusting. Holds seal running or standing.

THE name "West Point" stands for carefully engineered designs and faultless performance in textile mill slashers everywhere. With West Point, as with other leading manufacturers, one key factor in performance is the selection of Revolving Joints.

To provide *trouble-free* rotating connections for steam supply and condensate drainage, West Point Slashers are regularly equipped with Barco Revolving Joints—*as indicated in the above installation.*

Let us send you complete information about Barco's new *improved* Type IBR Revolving Joints for Textile Machine Dryers, Slashers, Dry Cans, Sanforizers. *Catalog 300 on request.*

BARCO MANUFACTURING CO.
534F Hough Street • Barrington, Illinois
In Canada: The Holden Co., Ltd.

BARCO— *THE ONLY TRULY COMPLETE LINE OF FLEXIBLE BALL, SWIVEL, SWING, AND REVOLVING JOINTS*

waste unless they are applied intelligently, adapted to particular conditions in each mill and product, and followed through with careful card maintenance and faithful supervision. Some of the recommendations given may vary greatly from our orthodox way of doing things. But the benefits of improved card operation have been proved not only in the laboratory but in actual mill production.

No doubt in the past we have all taken the card too much for granted. Long custom has established certain settings, speeds, and methods of maintenance. Real pioneering research without reserve, prejudice, or the addition of any fancy, expensive gadgets has shown there can be different and better ways to take full advantage of all the good inherent production qualities of the humble cotton card. It appears sensible and profitable to follow along the lines outlined in the article with a few modifications, if necessary, to fit each particular plant, conditions, and nature of finished product.

THOMAS J. MCCARTHY
New Bedford, Mass.

Rewards for Problems?

Dear Editor:

The ideal situation occurs when an employee in a textile mill sees a problem, works out a solution, and gives the resulting suggestions to management in perfected form. However, if you have been encouraging only the neatly packaged question and answer, you may be overlooking another way in which workers' thinking can be utilized.

More and more, top management realizes that seeing (or admitting) a problem is important in itself. Certainly an alert employee has a splendid opportunity to spot trouble before it grows into something too big for mill management to ignore.

A mill man said recently that a worker who calls a problem to the attention of management has, in at least some cases, done all that can be expected of him. After all, it does seem impractical to let inefficiency grow merely because the man who first noticed it happened to lack the ability for thinking it through to a satisfactory solution.

This man may have the really modern slant on employee suggestions. Perhaps some reward should go to the worker who helps direct management's thinking along profitable lines, even though he himself does little more than see the problem in its early stages.

GEORGE M. DODSON
Harrisburg, Pa.

For more information, write direct or use Reader-Service post card.

AUTOCOPSER

The World's Most

VERSATILE QUILLER

Textile Mills problem No. 1 in a buyers' market:

ONE STYLE TODAY . . . . . .

ONE *HUNDRED* STYLES TOMORROW . .

Only with the AUTOCOPSER in your quiller room can you follow the market trends at maximum efficiency, and lowest possible costs.

Write today to The Terrell Machine Co., Charlotte, N. C. for booklets explaining the outstanding features of the AUTOCOPSER!

Schlafhorst

AUTOCOPSER

First Name in Automatic Quillers the World Over

SOLD AND SERVICED BY THE TERRELL MACHINE COMPANY, INC., 3000 S. BLVD., CHARLOTTE, N. C.

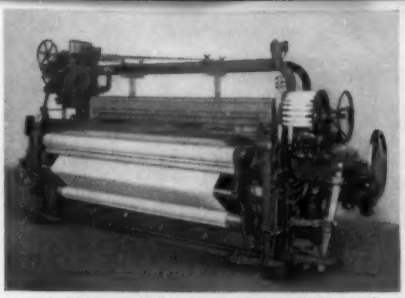
. . . and there's ONLY ONE WAY to Prevent it.

If your present skein dyeing equipment results in snarled yarn or broken filaments, you are incurring needless extra cost and time in back-winding. There is one sure way to end this waste and *only* one . . . install the SMITH-DRUM Type CSD Skein Dyeing Machine.

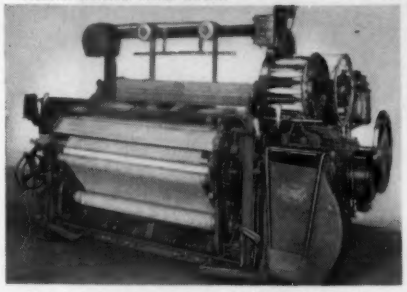
This is the machine that introduced the principle of "moving the liquor instead of the yarn." As a result, it entirely eliminates tangling or breaking of the yarn . . . leaving it in perfect condition for winding. It also dyes yarn more quickly and uniformly than other methods, resulting in savings of from 10% to 30%. If you dye filament rayon, nylon and other synthetic yarns or fine count cotton yarns in skein form, it will pay you to get the facts on this proven money-saving machine. Write . . .

SMITH, DRUM & COMPANY
432 W. Allegheny Ave., Phila. 33, Pa.

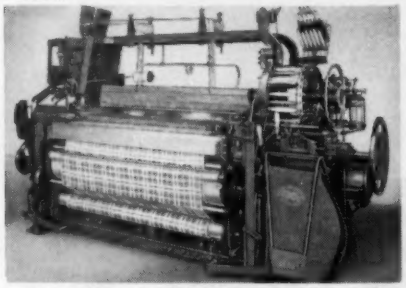
The (SMITH-DRUM) *Machine that*
Moves the Liquor Instead of the Yarn!



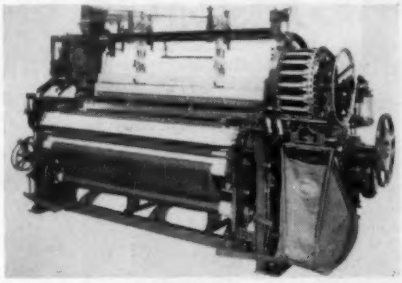
M-P 20 Harness (½" space) 2 x 1 box AUTOMATIC FILLING MIXING HEAD LOOM



M-P 4 Harness 2 x 1 box AUTOMATIC UNDERCAM LOOM



M-P 20 Harness (15/32" ga.) 4 x 1 box AUTOMATIC DOBBY LOOM



M-P 20 Harness (15/32" ga.) 2 x 1 box AUTOMATIC DOBBY LOOM

M-P 25 Harness (4/10" space) 4 x 1 box AUTOMATIC HEAD LOOM

These are born SOUND POLICIES

It's a good bet that you're adequately covered by insurance on yourself, your house and your property. *But what about your weave room?*

What sounder business insurance can you take out on your mill than a reasonable program of loom-replacement (each year, 10% of your least efficient looms) with C&K's modern Multi-Purpose Looms . . . both for their immediate benefits . . . and for the even more important protection of *convertibility as required* to meet future trends in fashion.

And *M-P Convertibility* means that you can have . . . on the same basic loom-frame . . . a wide choice of letoffs, takeups, shedding mechanisms, feelers . . . as well as lay constructions in an unmatched range from single shuttle, single color to 7 shuttles, 7 colors.

That's why **M-P** means **M**ore **P**rotection for your **M**ill **P**rofits in the future . . . and why it will pay you to *see C&K today.*

This "Invisible Trademark" Stands Back of the Trademarks of the World's Finest Fabrics . . . which are **WOVEN** Fabrics.

THESE NEW M-P FEATURES CONTRIBUTE → TO THESE PROFIT FACTORS

	Better Quality	Increased Work Assignments	Increased Production (Speed X Efficiency)	Lower Maintenance	Versatility
Rotary Magazine: For single color, or for multiple-color work (up to 4).	✓	✓	✓	✓	✓
Scissors Thread Cutter	✓	✓	✓	✓	✓
Vacuum Filling Control	✓	✓	✓		✓
Cone Picking		✓	✓	✓	
More Rugged Basic Frame: Common to all M-P Looms.		✓	✓	✓	✓
Letoffs: New composite type. Also other standard and special types.	✓	✓		✓	✓
Takeups: All purpose, silk, or lawn winding roll.	✓				✓
Lay: Precision-built and convertible — 1x1, 2x1, 4x1, 4x2, and 4x4	✓	✓	✓	✓	✓
Shedding Mechanisms: Knowles Head — 25 Harness, 4/10" Space; Knowles Head — 20 Harness, 1/2" Space; Dobby — 20 Harness, 15/32" Gauge; Undercam; Jacquard	✓	✓	✓	✓	✓
Feelers: As required.	✓	✓	✓		✓
Driving & Shipping	✓	✓	✓	✓	

PRECISION, STRENGTH, SIMPLICITY Throughout Every M-P Loom

Crompton & Knowles LOOM WORKS

WORCESTER 1, MASSACHUSETTS, U. S. A.

Charlotte, N. C. • Philadelphia, Pa. • Allentown, Pa.
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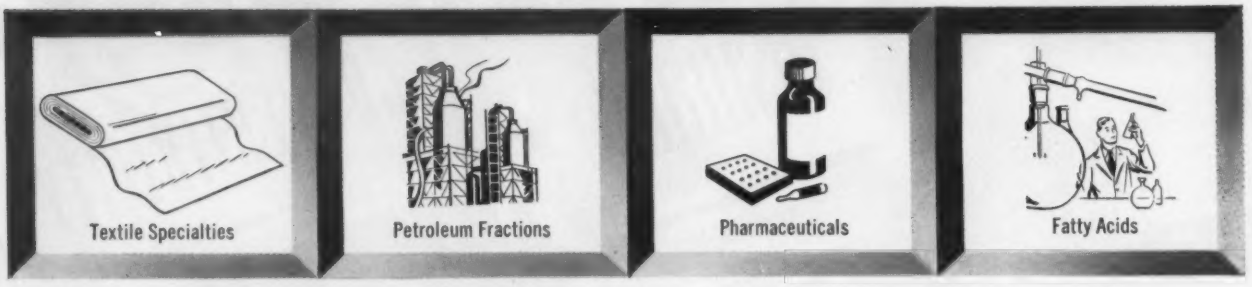
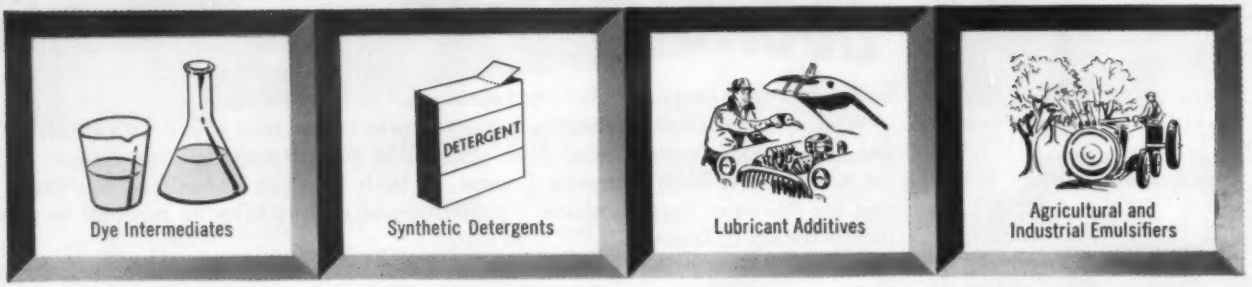
FOR SULFONATIONS SULFATIONS



Use SULFAN®

(Stabilized Sulfuric Anhydride)



. . . Here's Why!

You Improve Sulfonation Efficiency. SULFAN has 99.5% SO_3 available for sulfonation reactions. In many applications, this means considerable savings in operating costs because SULFAN offers nine times as much usable SO_3 as 100% sulfuric acid, and over three times as much as 20% oleum.

You Increase Batch Sizes. With SULFAN, there is no waste acid. This means larger batch sizes (or more rapid through-put) . . . often double without increasing size of equipment! Since no water is formed when SULFAN is used for sulfonation, the waste acid problem inherent with sulfuric acid or oleum is also eliminated.

Benefits of operating efficiency, ease of handling and waste acid elimination make SULFAN worth your prompt investigation. Write today for technical information. A letter outlining your specific needs will enable us to supply data of value to you. As always, information regarding your process will be held in strict confidence.

Product Development Department

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

GC Allied Chemical

Basic Chemicals for American Industry

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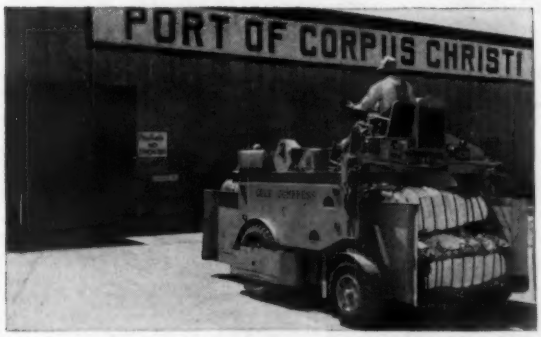
Over-the-road handling by the Ross Carrier

Gulf Compress Company*

Increases Hauling Rate 200%



No waiting time at the dock—he drops the load and away he goes!

The carrier does double-duty as a trash truck.

with 4 ROSS Carriers

Prior to owning Ross Carriers, cotton was transported 2½ miles by a tractor-trailer system from the Gulf Compress Company's warehouse to ships waiting at a loading dock. Because a round-trip took over an hour and a half, and a capacity load was only 66 bales, the Gulf Compress management knew improved handling methods had to be found. Ross Carriers were their answer.

Each one, equipped with special load hooks, can handle 15 bales and complete a trip to the docks in 15 minutes . . . an increase in the hauling rate of more than 200%! The problem of equipment flexibility has been solved, too. Carriers don't stand idle while cotton loads are made up . . . and when there is no cotton to move, the carriers do double-duty by acting as disposal units. With a specially constructed box, they roam the company's 26 acres picking up cut weeds, trash and other potential fire hazards. It takes only 5 seconds for one man to load a carrier . . . 3 seconds to unload.

Why not call your local Clark dealer, listed under "Trucks, Industrial" in the Yellow Pages, and ask him how the Ross Carrier can cut your handling costs.

*Gulf Compress Company—Corpus Christi, Texas.

CLARK EQUIPMENT

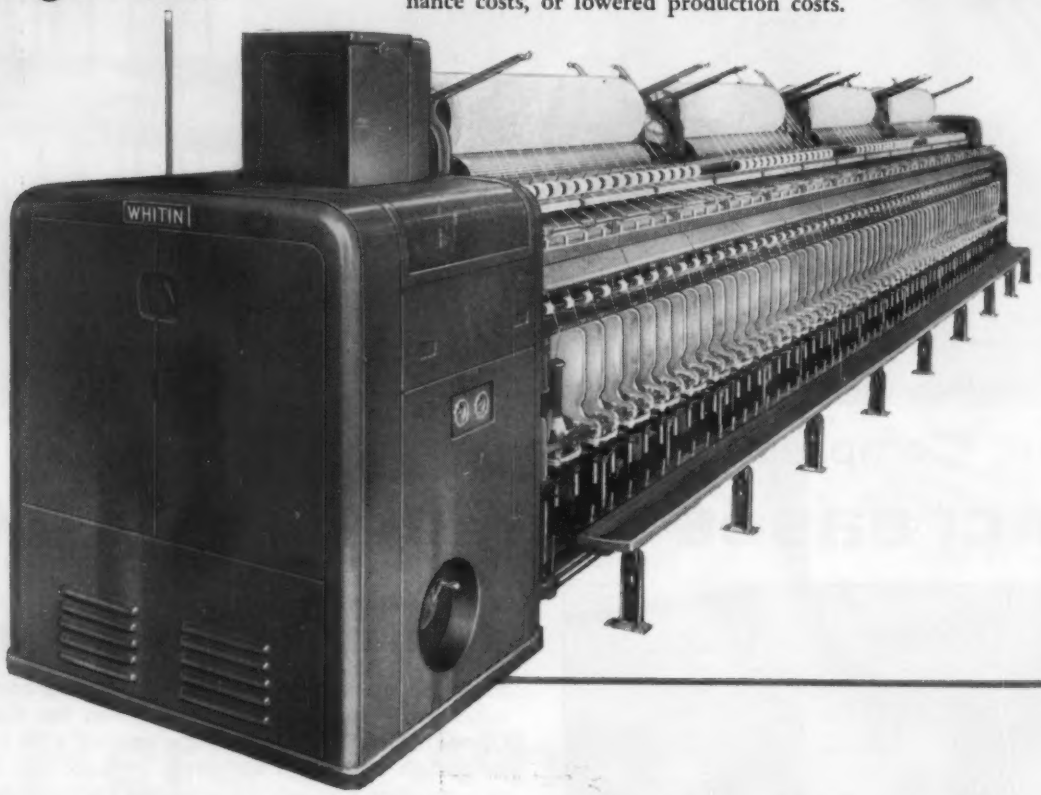
ROSS CARRIER DIVISION
CLARK EQUIPMENT COMPANY
Benton Harbor 27, Michigan

 For more information, write direct or use Reader-Service post card.

The WHITIN FLEX-SPIN Wool Spinning Frame

The Whitin FLEX-SPIN Wool Spinning frame with its many improvements and attractive features is certainly the finest machine ever offered to the wool industry for *profit-making* operations. In this one frame is incorporated every practical, desirable, and helpful improvement and accessory that the most forward-looking and efficient mill could desire.

This machine has more than 20 major improvements, all of them important for their contributions to improved yarn quality, increased frame efficiency, reduced maintenance costs, or lowered production costs.



The frame you have been asking for... with all these important features

- Streamlined Design
- Instantly Variable Frame Speed
- Instantly Variable Twister Head Speed
- Tachometers for Front Roll and Twister Head Speeds
- Four Speed Shift Transmission for Quick Twist Change
- New Twister Head Design
- Spring Weighting on Front Rolls
- Oil Free Head End Operating Condition
- Instantaneous, Simple Reverse-Twist Control
- Lubrication Greatly Simplified
- Increased Traverse Motion Stroke
- 12" Traverse for Paper Tubes

Write today for descriptive literature giving complete details.

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

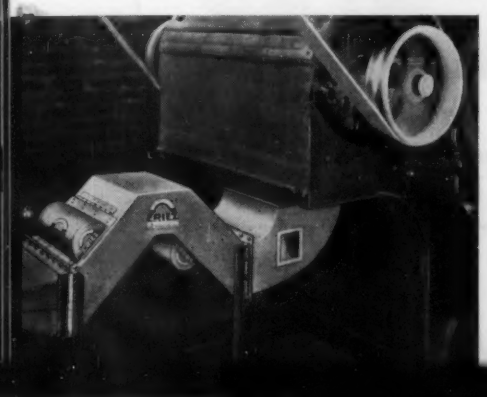
CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

For more information, write direct or use Reader-Service post card.

OLD IRON PANTS AND THE MAGNET! A lady from yesterday with a metal-ribbed girdle wouldn't be safe next to an Eriez Magnet. She might easily be "hung-up" by the powerful Alnico V action. This idea of herculean power is practically applied in textile processing lines. Magnets remove dangerous tramp iron preventing fires, machinery damage and loss of production in cotton, woolen, rayon and waste mills. *All Eriez Magnets are non-electric, self-contained. They operate without any wires or attachments. Best of all their magnetic power lasts a lifetime. The first cost is the last.*

MAGNETIC IDEAS FROM ERIEZ

TRAMP IRON CAN'T GET OVER THIS HUMP. Eriez Permanent Non-electric Magnetic Humps offer the ideal method of removing dangerous tramp iron from material conveyed in pneumatic lines. The patented Eriez Hump consists of 2 powerful plate magnets in an enclosed sheet-metal housing. The hump design changes the direction of the flowing material, creating a mixing or tumbling action. This directional change of the moving material allows the magnets to catch and hold spark-producing tramp iron. Eriez Magnetic Humps bear the Associated Factory Mutual Stamp of Approval for installation in textile mills, and are heartily endorsed by insurance companies as a means of reducing mill fires caused by tramp iron. Want more information? . . . request Bulletin 563.



ERIEZ SPIKED-APRON MAGNET SPIKES METAL DAMAGE. Lawrence Garnet Co., Lawrence, Mass., produces garnet specialties of silk and worsted, white worsted and merino. As a precaution against tramp iron damage to the machines, Eriez Spiked-Apron Magnets were installed in the feeder boxes. This step proved highly successful, and the magnets removed large quantities of knitting needles, pieces of spindles, ring travellers, etc., from the processing lines. Previously, any metal such as this would put the machine out of use for days or even weeks, seriously curtailing production. So efficient were the magnets in preventing tramp iron damage, thus saving thousands of dollars, that when the company recently installed new machinery, it would not use it until Eriez Permanent Magnets had been added.

ERIEZ MAGNET IS WATCHDOG FOR THIS FLOCK. Cellusuede Products, Inc., Rockford, Ill., manufacturer of rayon, cotton and hair flock, protects its reputation and costly cutting knives with an Eriez Plate Magnet that pulls dangerous tramp iron from the raw material before it reaches the knife blades. The finished flock, used as a coating material for textiles, paper, metals, etc., and as a reinforcing material to strengthen rubber and plastic compositions, *must* be entirely free of metal contamination. Since installing the magnet, there has been no trace of stray metal, no damage to knives by tramp iron.

ERIEZ

Eriez "Magnetic Ideas" can help you. Eriez' factory-trained field men, backed by Eriez' laboratory and engineering know-how, will be happy to study your particular problem, make a plant survey and offer helpful "Magnetic Ideas". Write or call Eriez Manufacturing Company, 1015 Magnet Drive, Erie, Pa.

For Processing and Finishing Wools, Cottons, Silks, Synthetics

When you use soap—You Can Depend On

COLGATE FORMULA 10

For the best job!

92% Sodium Oleate • titer on the fatty acids 10° Centigrade • easily dissolved • excellent detergent effect • mild fulling action when you want it • easily rinsed at low temperatures with no bad odor left in the fabric.

Yes, you can depend on COLGATE FORMULA 10* for dozens of textile processing and finishing jobs.

For low-temperature washing *ordinarily requiring olive oil soaps*, try COLGATE FORMULA 25.*

*Sold in eastern states only.

See your local C.P. representative for details, or write today to our Industrial Department.

FREE! New 1955 Handy Soap and Synthetic Detergent Buying Guide tells you the right product for every purpose. Get a copy from your C. P. representative, or write us at any one of the offices listed below.

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ARE YOU ONE OF THESE MILL EXECUTIVES . . . ?

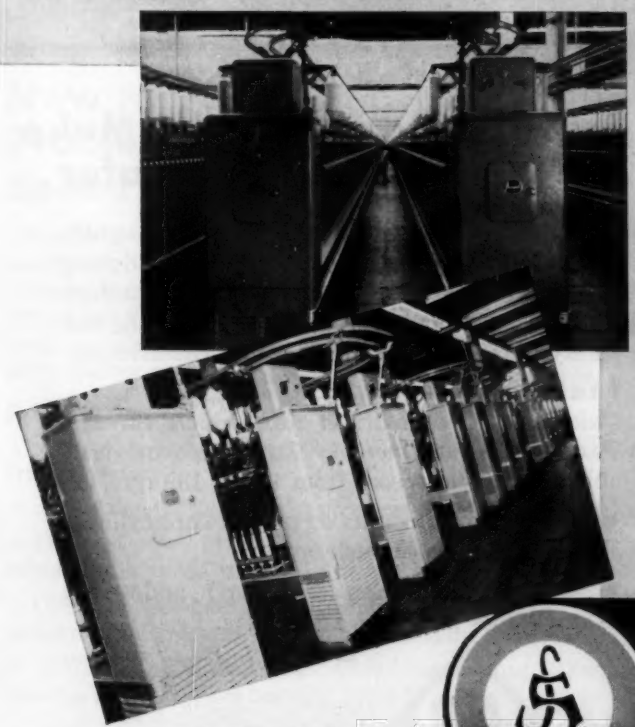
SEEKING A WAY TO MAKE BETTER YARN AT LOWER COST

SACO-LOWELL

HAD THE ANSWER FOR OVER 60 MILLS — THEY HAVE IT FOR YOURS TOO!

GWALTNEY SPINNING

MAKES YOUR YARN QUALITY EVEN BETTER — LOWERS YOUR COSTS, INCREASES YOUR PROFITS.



Gwaltney Installation at Werthen Bag Corp.

The day of small rings, short bobbins and small package spinning is over — to meet competition it is essential that mills install equipment that will spin large packages and prepare filling by rewinding.

Saco-Lowell Gwaltney Spinning Frames are the answer to better quality and higher profits. The more than 60 mills with Gwaltney installations are now leading the way to new horizons profit-wise from this equipment — the only really new development in spinning machinery for over 100 years.

Gwaltney Spinning has a place in your mill — a Saco-Lowell engineer will be glad to give you full details and arrange for a demonstration. Call or write to your nearest Saco-Lowell Office.

SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N. C.

SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA

ALLIS-CHALMERS

TEXTILE DRIVES

All

Increase Quality and Production ... Cut Maintenance

Power Packages . . . Get complete coordinated equipment from power line to the driven shaft of your textile machinery. Allis-Chalmers textile drives result from thorough knowledge of power requirements throughout the plant. Each unit described here has been designed to get maximum efficiency, output and continuity of service from a specific type of machine. Motor, control and drive characteristics are all tailored to the job, and long operating experience has proved their effectiveness.

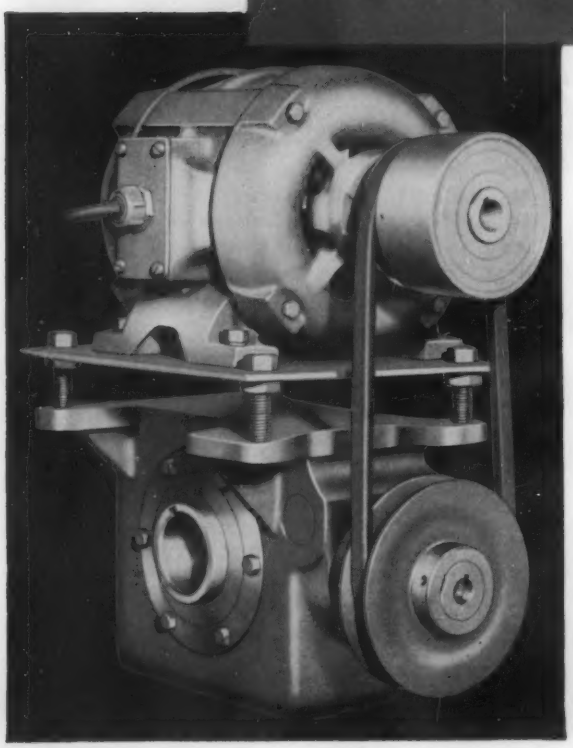
Backed by Certified Service

Allis-Chalmers distributors and district offices in all major textile areas offer skilled application help. Well-equipped and conveniently located Certified Service Shops provide factory-approved methods and parts to keep your drive equipment operating at top efficiency.

Get This Literature

Handy Guide to Motor Selection (Bulletin 51B6052) —*Quick-Clean* Textile Motors (51B6055B) —Across-the-Line Starters (14B7132) —Reduced Voltage Starters (14B7215) — and *Vari-Pitch* Drive Engineering Data (20B7499). Call your nearby A-C District Office or write Allis-Chalmers, Milwaukee 1, Wis.

CARDING



Individual Card Drives Make Card Rooms Cleaner, Safer

Individual card drives do away with unsightly and dangerous overhead line shafting and long belts. No hard-to-clean ceiling structure to drop dirt and grease in machines — better lighting and plenty of ceiling room to install air conditioning.

Features

Quick-Clean motor drives gear reducer through *Texrope* drive and mercury clutch. Sheave adjustable for cylinder speeds from 157 to 189 rpm.

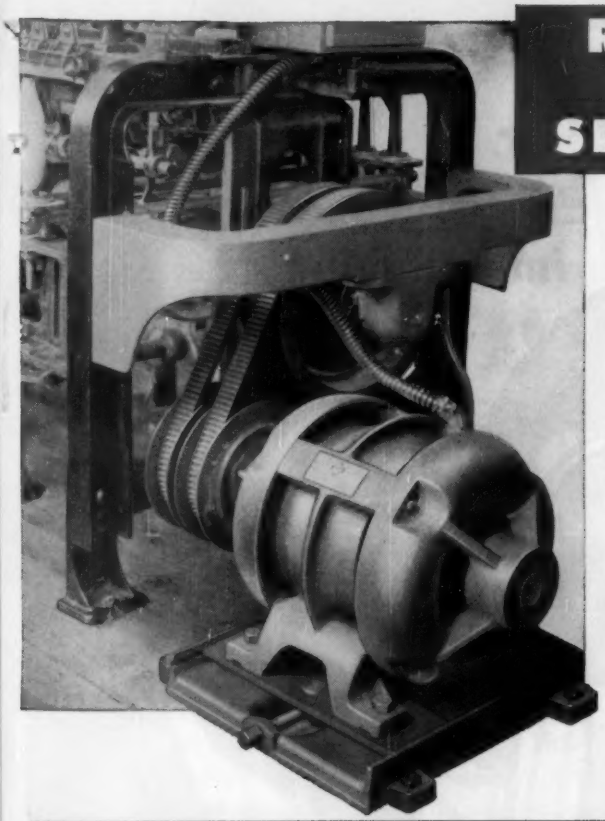
- Complete unit mounts on present card cylinder shaft and fits present aisle space.
- No vibration or strain on card arch, and weight of drive does not overload bearing.

Quick-Clean, Vari-Pitch and Texrope are Allis-Chalmers trademarks.

A-C ALLIS-CHALMERS

ALLIS-

through the mill



ROVING and SPINNING

Lint and Dirt Can't Stop *Quick-Clean* Textile Motors

Wide open air passages and powerful fans sweep dirt and lint right through and OUT of these motors. They end motor problems created by lint-laden atmospheres.

Features

Bearings: sealed, prelubricated double-width single-row ball bearings operate long periods without attention of any kind. May be cleaned and repacked if required.

- Slow-acceleration motor for roving frames. Takes almost three times as long as standard motor to reach speed. No special control required.
- *Texrope* V-belt drives and correct control supplied to meet complete machine drive needs.

WEAVING

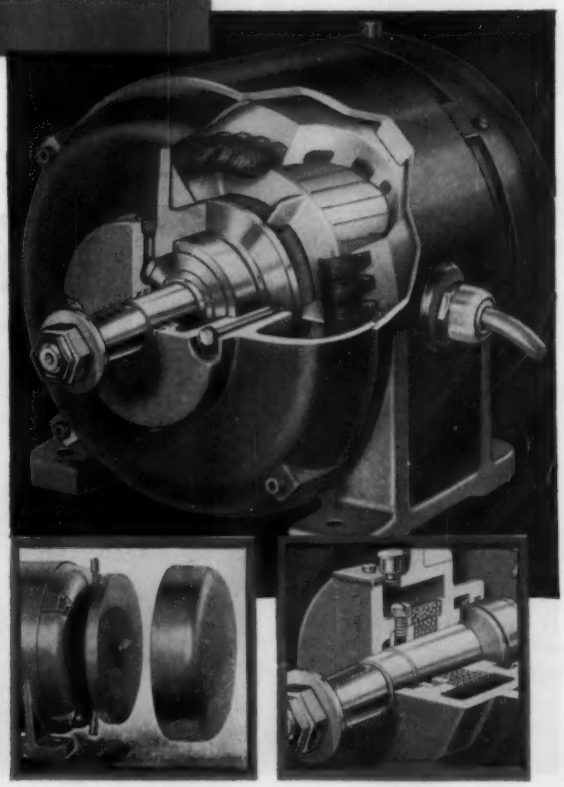
New Motor Design Licks Problems of Modern High Speed Operation

Oversize rotor, stator and bearings built to handle rapidly oscillating load of loom speeds as high as 200 picks per minute and more. Rotor diameter is as great as possible for added flywheel effect, and slip has been regulated to produce minimum speed variation. Nearly two years of field testing prove the operating economies possible.

Features

Totally enclosed, non-ventilated design excludes all lint from interior.

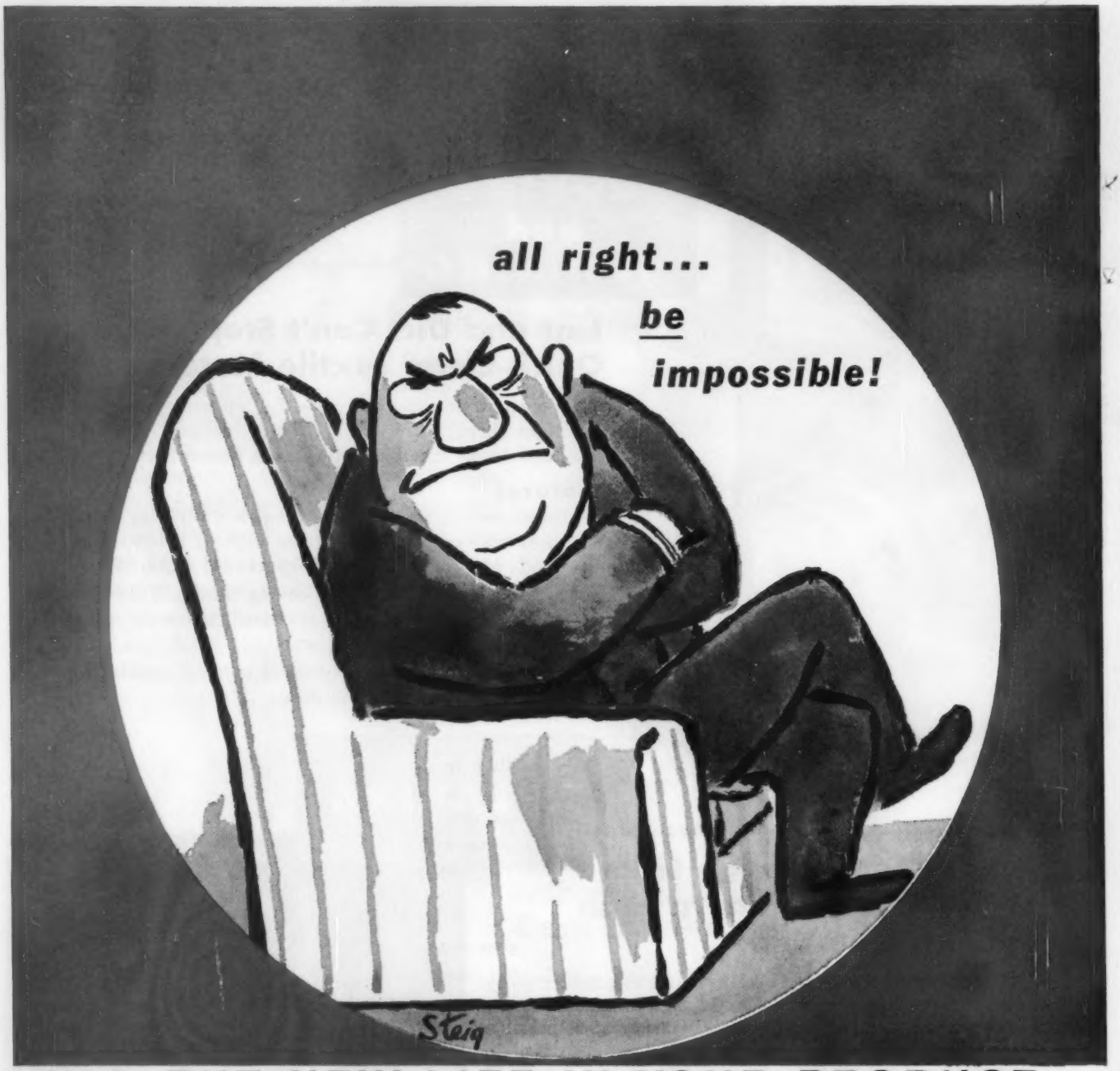
- Stator double insulated, extra large, heavy construction.
- Die cast rotor of large diameter and proper slip maintains stable speed under pulsating load.
- Oversize ball bearings of double-shielded type protect against over-greasing that causes bearing trouble.
- Optional: (1) flywheel for added inertia and (2) waste-packed bronze sleeve bearing.



A-4538

CHALMERS

 For more information, write direct or use Reader-Service post card.



WILL PUT NEW LIFE IN YOUR PRODUCT

THE NEW Nylon Staple

FROM HERE ON IN, the odds are with you that with the seven distinctive features of the NEW Nylon Staple by IRC you can achieve ideas for new products... or product improvements... that you never thought would work.

For this is an entirely new kind of Nylon Staple... with a new brighter-than-bright luster that creates sheen without shine... a new crimp that can come up with new effects... it dyes quicker, deeper, with more absorbency. You can get new resistance to abrasion with it, better spring-back, new strength with finer yarns. All adding up to greater economy and higher quality for you.

And you can expect the NEW Nylon Staple by IRC to give you the same cost-cutting uniformity and performance that industry has come to expect of IRC rayon yarns.

. . . BRING NEW PRODUCTS TO LIFE!

- NEW LUSTER • NEW DYEABILITY
- NEW CRIMP • NEW ABRASION CHARACTERISTICS
- NEW RESILIENCY WITH LESS CRUSHABILITY
- NEW STRENGTH . . . AND NEW ECONOMY FOR YOU

I·R·C

Industrial Rayon Corporation

Sales Offices:
500 Fifth Avenue, New York 36, N. Y.
807 Guilford Building, Greensboro, N. C.

WHAT'S NEW AT BRISTOL

FIRST instrument system BASIC GRAPHIC-PANEL

It's BRISTOL'S new metagraphic instrument system

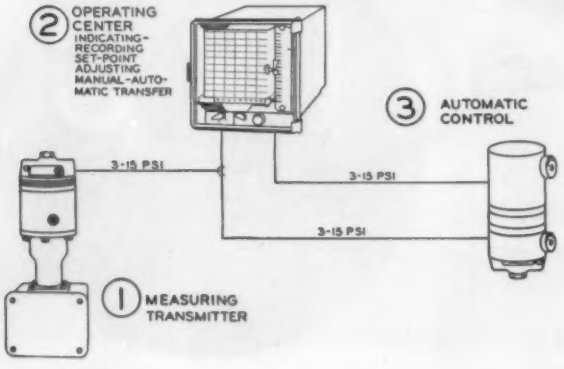
A WIDE SELECTION: For example, there are 35 receiver and 34 controller models and the widest variety of transmitters on the market. A model can be found among these that will exactly meet any requirement.

FULL PLUG-IN SERVICE: Change recorder to an indicator or vice versa in 10 seconds with ABSOLUTELY NO INTERRUPTION WHATSOEVER TO AUTOMATIC CONTROL.

Pull complete chassis out (one piece chassis — no tools required). With chassis removed you get the same automatic control as before.

Change from one model to another or if trouble is suspected in a plug-in unit, the doubtful unit can be replaced by a spare while the suspected unit is checked in the service shop — out-of-service time is thus eliminated.

CONTINUOUS VALVE POSITION INDICATION on *same instrument scale as set point scale*, gives continuous data on control valve position—makes "bumpless" transfer possible, simply by matching pointer positions — no need to read actual scale values — minimizes reading errors — speeds operations.



METAGRAPHIC TRANSMITTER

SUPPLIED IN A VERY WIDE VARIETY OF SPANS AND RANGES: For example, absolute pressure instruments are made in ranges as low as 5mm mercury absolute. Pressure instruments as low as 5 inches water to 10,000 psi. Over-range protection available up to 400% over range.

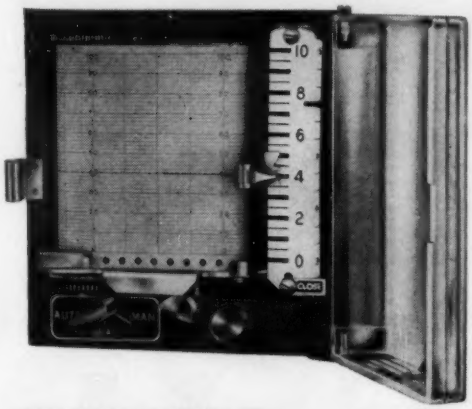
STANDARD BRISTOL MEASURING ELEMENTS ARE USED — high torque, wide-angle travel gives powerful, positive operation. Very sensitive — as little change as 0.03% of range, including reversal.

METAGRAPHIC INSTRUMENTS MEASURE, RECORD, INDICATE, AND AUTOMATICALLY CONTROL

Pressure	Liquid Level
Vacuum	Flow
Absolute Pressure	Temperature and
Differential Pressure	Mechanical Motion

For more information, write direct or use Reader-Service post card.

that carries out idea completely!

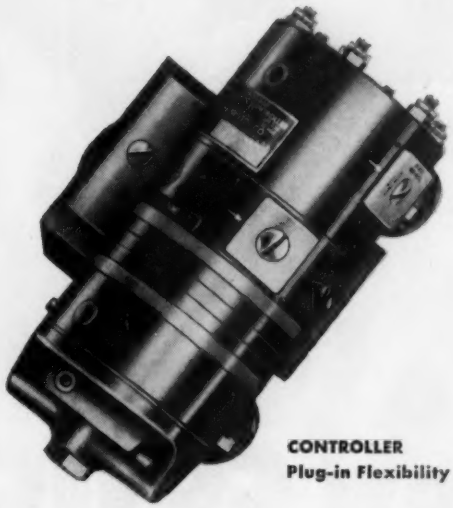


RECORDING RECEIVER:
Also furnished as an Indicator

NO INTERRUPTION WHATEVER TO AUTOMATIC CONTROL when receiver chassis is removed. The chassis of a Metagraphic Receiver is plug-in construction and can be changed from a recorder to an indicator or back in a matter of 10 seconds.

OFFERED FOR UP TO 3 MEASURED VARIABLES — with air pressure regulators or air-loaded regulators — three-position manual-automatic transfer valves for automatic control and *six-position (on the same knob) transfer valves for cascaded control.*

ALL MEASUREMENTS ON SAME SCALE PLATE: Deviation of pointers shows at a glance conditions of control — no need to read scale.



CONTROLLER
Plug-in Flexibility

VARIETY AND FLEXIBILITY: The most flexible and complete line of controllers offered — 34 different models, including the following variations:

1. Remote set-point
2. Integral set-point (with or without air-loading)
3. Pipe-connected
4. Plug-in receiver mounted
5. Plug-in pipe or surface mounted
6. Five models of control action as follows:
   a. On-Off
   b. Adjustable proportional
   c. Adjustable proportional plus reset
   d. Fixed proportional plus reset
   e. Proportional plus reset plus rate (derivative)

Write for our product data sheets. The Bristol Company, 103 Bristol Road, Waterbury 20, Conn.

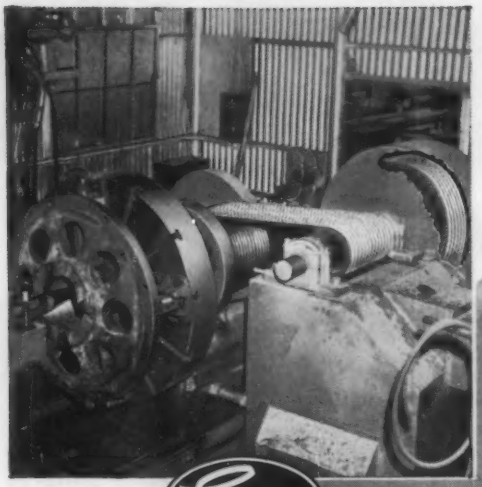
6.5.2

TRADE MARK BRISTOL'S REG. U.S. PAT. OFFICE

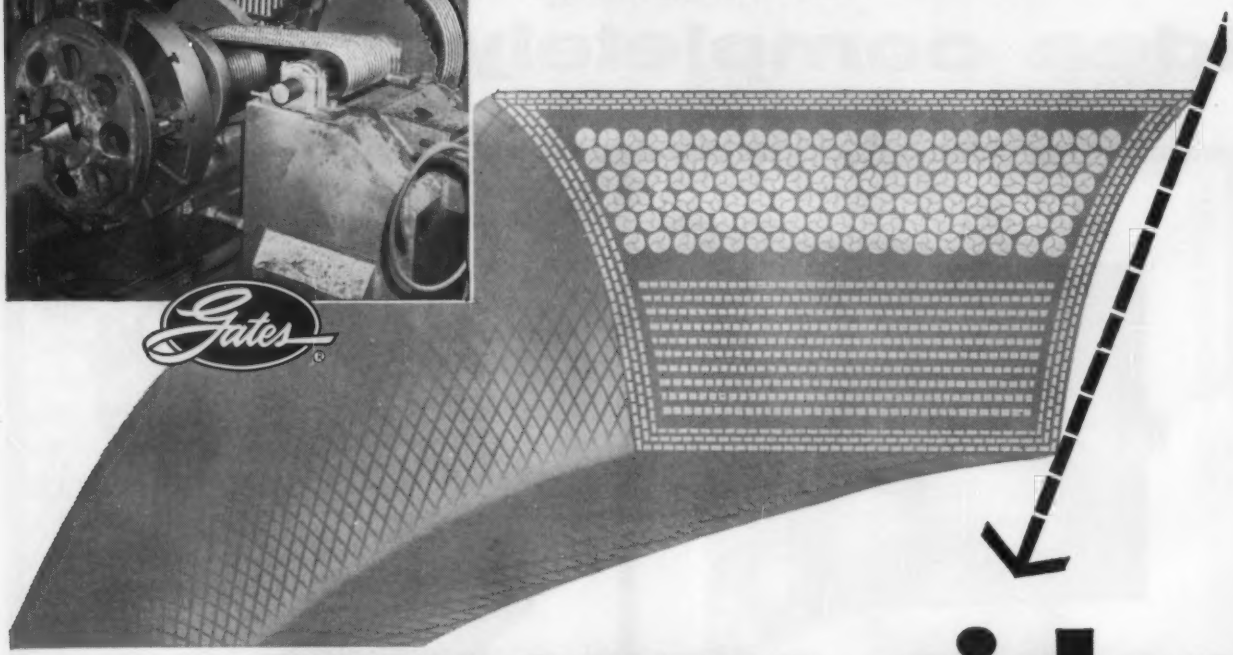
BRISTOL

POINTS THE WAY IN HUMAN-ENGINEERED INSTRUMENTATION

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS



The smooth, positive flow of power transmitted through Gates Vulco Ropes enables this large engine lathe to handle quickly and efficiently many tough oil field repair jobs.



How concave sides cut V-belt costs!

Plants all over the world have made this discovery: Gates Vulco Ropes—the V-belts with *concave sides*—wear longer; cost less per year of service.

Here is the interesting reason why:

When the Gates Vulco Rope is bent around the sheave, the *precisely engineered* concave sides (Fig. 1) fill out and become straight (Fig. 1-A). Thus the belt makes full, uniform contact with the sides of the pulley. You get sure pulling power and *even distribution of wear.*

Longer wear saves not only on replacement costs; it also saves the cost of down-time... keeps equipment producing.

It's easy to prove to yourself the value of concave sides

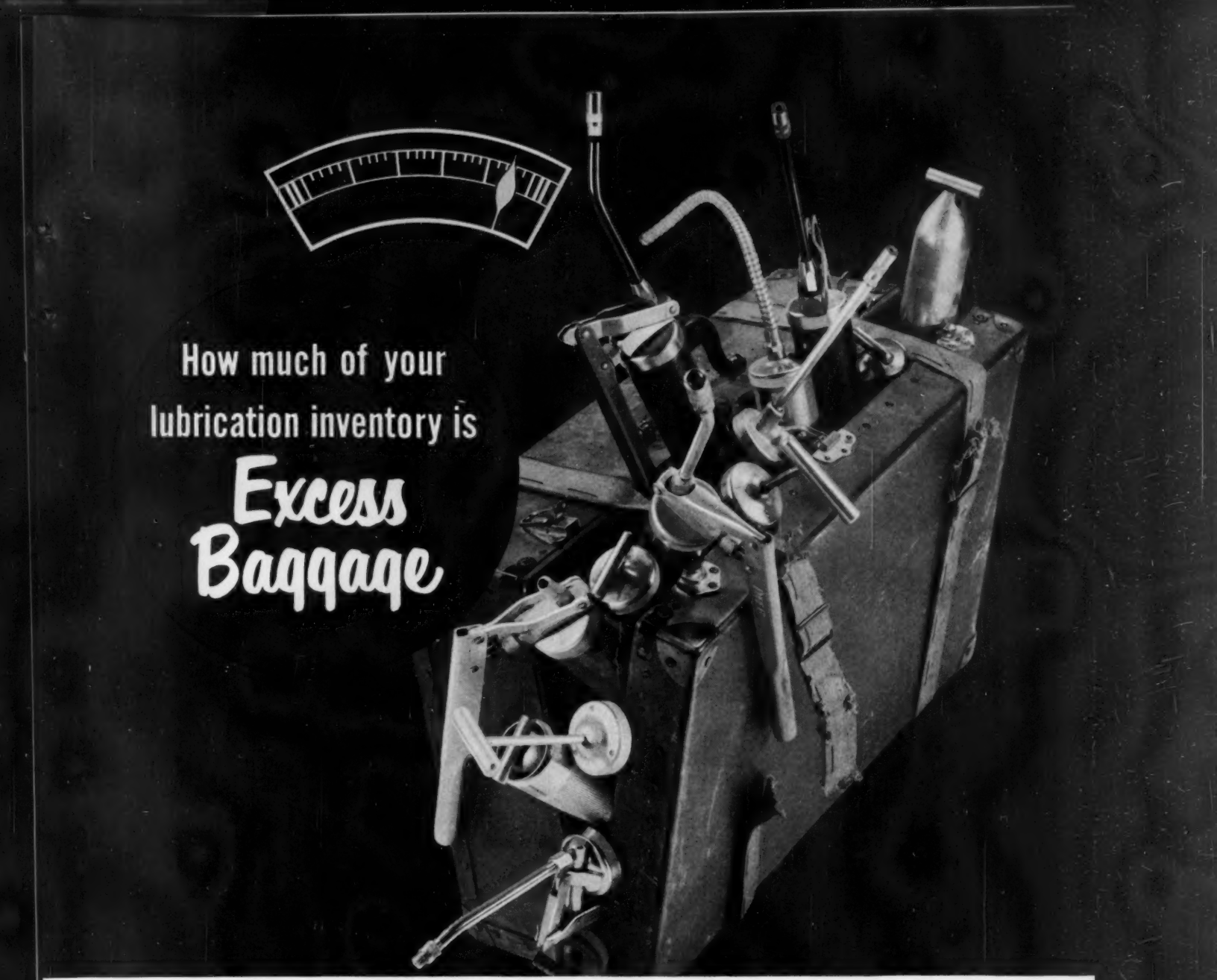
Simply bend a straight-sided belt (Fig. 2) and *feel* the bulge at the sides around the bend. You will quickly see why the bulging sides prevent an even fit in the pulley groove (Fig. 2-A). Uneven contact shortens belt life...increases belt costs.

Cut belt replacement time and costs...specify Gates Vulco Ropes—the V-Belt with *concave sides* (U.S. Pat. 1813698). The Gates Rubber Co., Denver, Colorado—*World's Largest Maker of V-Belts.*

Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA-30-A-G

GATES VULCO ROPE DRIVES



Cut costs with Pure's "Simplify and Save" Plan

BE SURE
PURE
WITH PURE

If you're using more than 6 lubricants in your plant, chances are *Pure Oil's multi-purpose lubricants* can cut costs for you. Here's why: just 6 of these special lubricants are all you need—reduces your inventory . . . reduces chance for error in application (and resulting "down time") . . . and the fewer the man-hours needed for ordering, stocking and application.

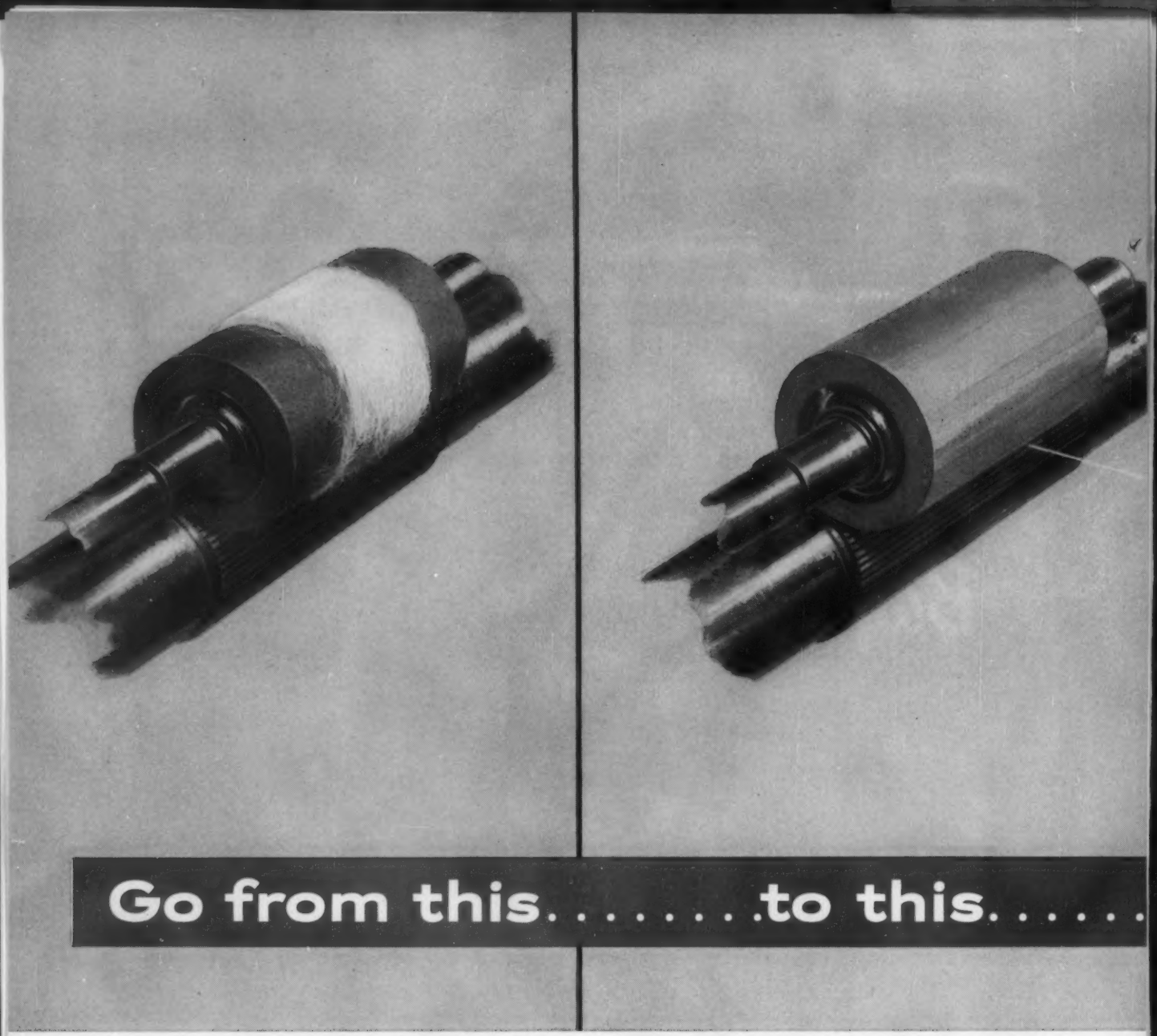
Find out how Pure's multi-purpose lubricants can cut costs in your plant. Reverse the charges to your nearest Pure Oil office today.

FREE BOOKLET tells you "How to Simplify and Save." Write The Pure Oil Company, 35 E. Wacker Drive, Chicago 1, Illinois. (Offer limited to Pure Oil's 24-state marketing area.)

Be sure with Pure

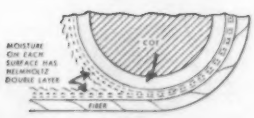
PURE MULTI-PURPOSE LUBRICANTS

Sales offices located in more than 500 cities in Pure's marketing area

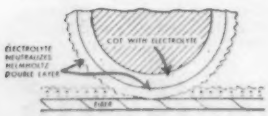


Go from this.....to this.....

What makes a cot lap? – Here's the answer:

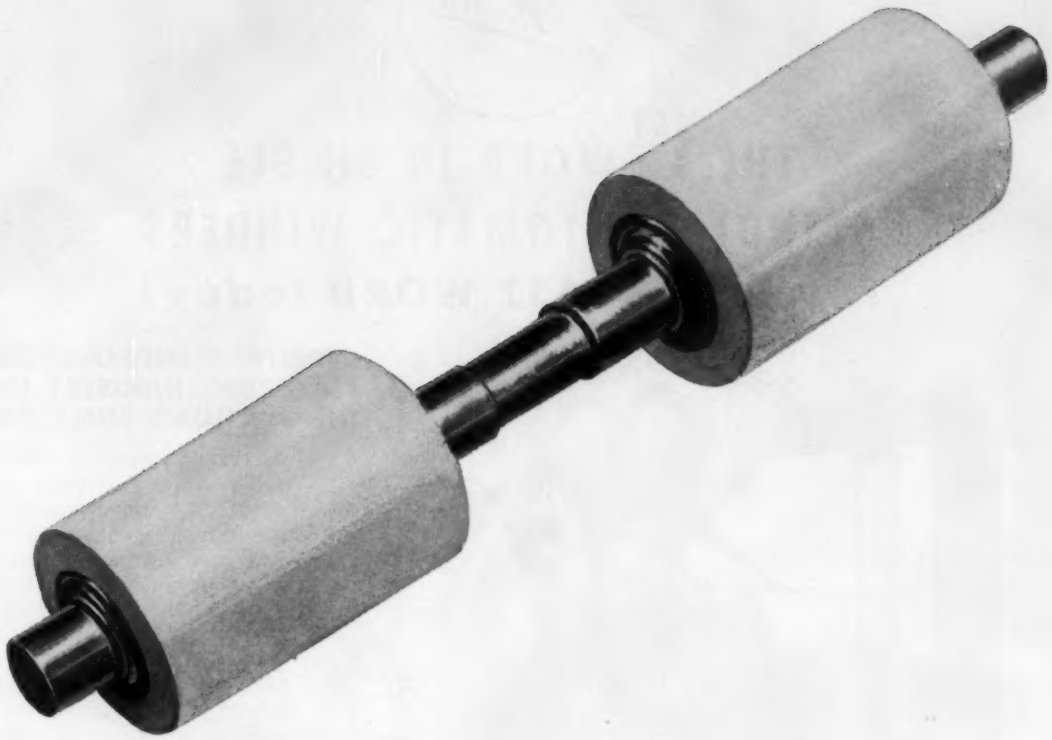


THIS COT LAPS: Moisture layers on fiber and cot contain electrical charges. When pressed together in spinning, these electrically charged moisture layers tend to adhere to each other. When an end breaks, this attraction is strong enough to hold the yarn and cause lapping.



THIS COT DOESN'T LAP: Electrolytes incorporated in patented Accotex composition neutralize the electrical charge in the moisture layer on the cot. Therefore, there can be no attraction between the cot and its moisture layer and no tendency for fibers to lap up onto the top roll.

For more information, write direct or use Reader-Service post card.



.....with J-490 Cots

LAP-RESISTANT J-490 ACCOTEX COTS GIVE YOU STRONG, EVEN YARN

Mill men spinning synthetics or natural fibers will tell you there *is* a difference in roll covers. Some covers allow serious front-roll laps. But only one cover consistently minimizes lapping on any type of stock—the Armstrong J-490 Accotex® Cot.

There's a good reason for this. J-490 Covers actually tend to repel broken ends. Special electrolytes in this cot permanently neutralize the normal attraction between cover and fiber.

Mill reports also prove that J-490 Accotex Covers are smooth and clean running . . . and stay that way for years with a minimum of rebuffing. Test them yourself and see how well they handle any fiber. Call your Armstrong man or write us direct.

If you have trouble with eyebrowing on your spinning frames, try the Armstrong NO-742-S Cot. This roll cover has a "constant-friction" surface that stops eyebrows from forming, even with the coarsest yarn.

Send for free booklet, "Armstrong Textile Roll Coverings and Mill Supplies." Write to Armstrong Cork Company, Industrial Division, 6505 Dauphin St., Lancaster, Pa.

Armstrong ACCOTEX COTS

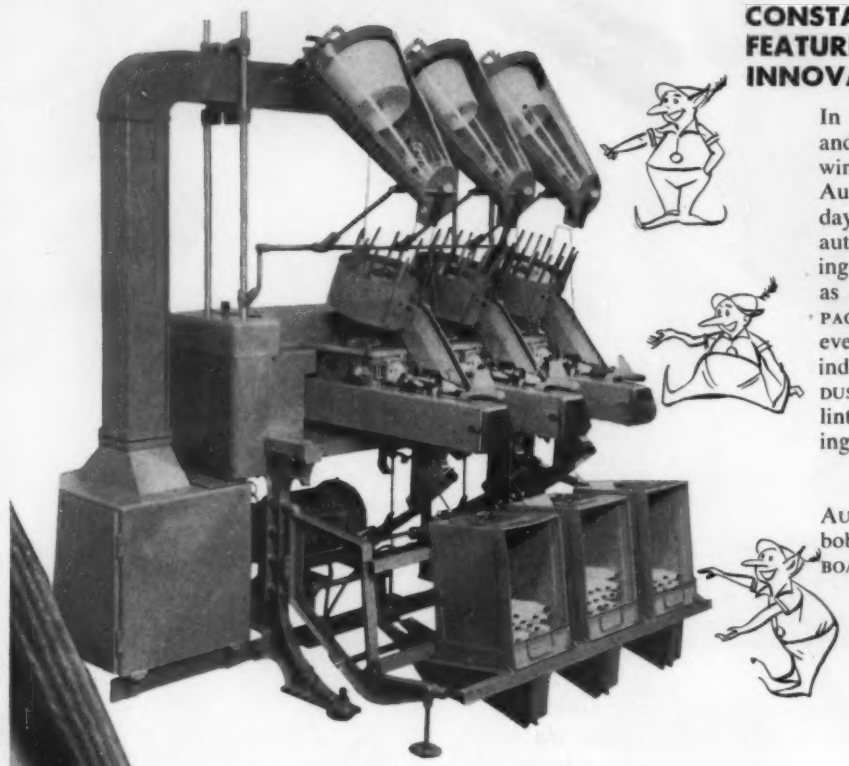
. . . used wherever performance counts

For more information, write direct or use Reader-Service post card.

Schweiter

THE 1ST WORD IN SINGLE SPINDLE AUTOMATIC WINDERS

is still the LAST WORD today!



CONSTANT IMPROVEMENTS FEATURING INDUSTRY-LEADING INNOVATIONS SINCE 1938

In 1938, Schweiter introduced the first and only automatic single spindle filling winder to the industry — the Schweiter Automatic Filling Bobbin Winder. Today, it is still the most modern, most automatic winder on the market, offering such Schweiter-engineered features as TAILLESS BOBBINS . . . AUTOMATIC PACKER that packs the bobbins from every winding spindle parallel into an individual box to go on the loom . . . DUST REMOVING DEVICE that removes lint, dust, seeds, etc., avoiding dirty filling, fly covered winders.

Plus

AUTOMATIC LOADING DEVICE for empty bobbins . . . AUTOMATIC INDIVIDUAL PIN BOARDING DEVICE that keeps the wound bobbins from each winding unit separate and puts them on individual pin boards . . . PRACTICAL WINDING SPEEDS according to yarn, from 5,000 to 10,000 RPM . . . DESIGNED TO WIND ALL TYPES OF YARN.

That's why the world's first single spindle automatic winder, introduced by Schweiter in 1938, is still the industry's most modern, most automatic winder available today!

Schweiter

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HORGEN (ZURICH) SWITZERLAND

Agents for U.S.A. and Canada **WHITIN MACHINE WORKS**
WHITINSVILLE, MASSACHUSETTS

OILGEAR FLUID POWER DRIVES

Solving the problem of close synchronization of driven members

As machines become more and more complex, combining more and more functions into a single unit, the problem of driving these machines successfully becomes more difficult.

This problem confronted Western Electric Company engineers in designing what they call their "Stalpeth" machines, two of which are shown above. These machines combine corrugating of steel and aluminum strips, forming them around the cable core, soldering the seam and then winding the assembly on reels at the far end. All of the members of the machine must be synchronized to the speed of the capstan unit. Going by their experience with other somewhat similar machines, Western Electric engineers again turned to Oilgear *"Any-Speed"* Fluid Power Drives, to solve what is really a complex problem ordinarily. Oilgear units provided an easy and economical means of synchronizing many machine components.

Oilgear *Any-Speed* Fluid Power Drives and transmissions *do* offer many machine design advantages including ease of control and synchronization of driven members, steplessly variable speed, fundamentally simple circuits, and long, trouble-free life. Write for Oilgear drive bulletins. THE OILGEAR COMPANY, 1577 W. Pierce St., Milwaukee 4, Wisconsin.

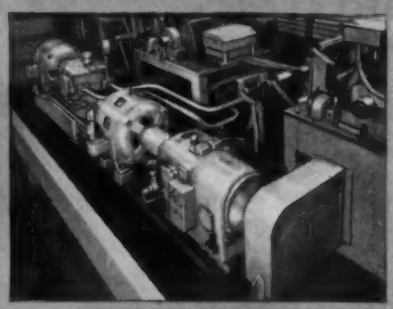
OILGEAR
Fluid Power

PIONEERS . . . NOW THREE PLANTS FOR FLUID POWER

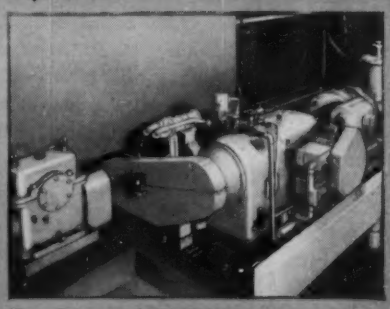
PUMPS, MOTORS, TRANSMISSIONS, CYLINDERS AND VALVES

"Stalpeth" machines add moisture barriers to telephone cable

These machines receive cable core, wrap it in aluminum and steel, solder the seam and coil it on reels. Oilgear *ANY-SPEED* Fluid Power Drives are an easy and economical means of synchronizing many machine units without a long lineshaft.

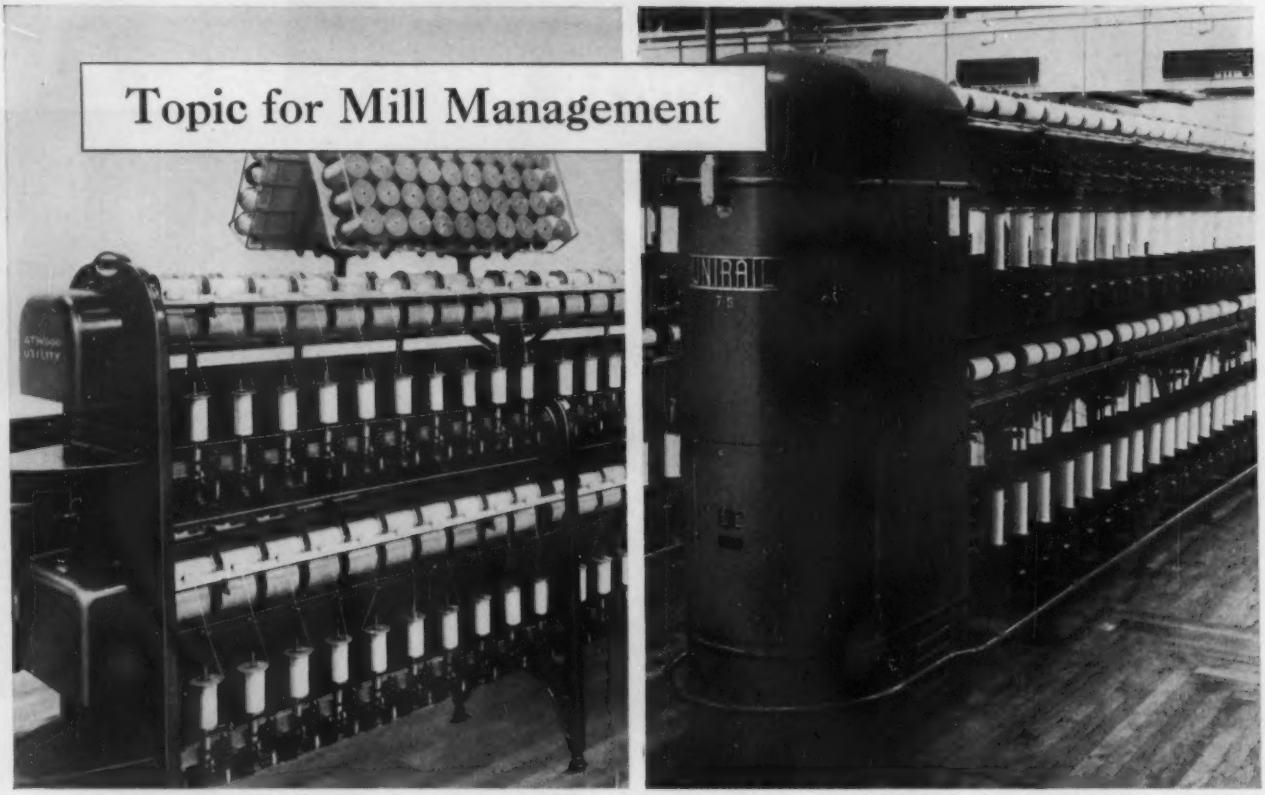


These Oilgear *ANY-SPEED* units drive the aluminum and steel corrugator units in perfect unison with the governing capstan unit.



The Oilgear *ANY-SPEED* capstan drive. Not shown here is another Oilgear unit driving the cable winding reels.

Topic for Mill Management



Which one is best? The Utility Uptwister (left) has been used in many mills for many years. The Unirail® (right) is a new development — capable of extremely high speeds, producing a 2 lb. headless package. Your Utility or other old Uptwisters may well be the most efficient, economical machines for the job they are doing. Or, replacement with Unirails for certain operations might bring you the economies and increased production you need to operate most profitably. Our Profit-Factor Study gives the answer, in facts and figures.

We help you find your profit factor

Just what equipment do you need to modernize for maximum profit? What is the best way to acquire it? What about competition?

Obviously there is no quick valid answer to these questions. But there are answers. And Universal has set up its Profit Factor Study precisely to help you get the *right* answers.

This is a detailed, *confidential* study of a given mill's twisting and winding operation — including related operations — followed by a complete, expert analysis on how to make production more efficient, and profitable, wherever possible.

The Profit-Factor Study is supplemented by the Leesona Pay-As-You-Profit Plans, designed to help mills strengthen their competitive position while safe-guarding their capital and borrowing power. These plans provide for either long-term purchase or long-term lease of Leesona twisting and winding machinery.

This folder introduces you to the Leesona Double-Profit Service, including Profit Factor Studies and Pay-As-You-Profit Plans. Read how you may take advantage of either of its two valuable features — or combine both to profit two ways. A copy is yours for the asking.

23.4.29

UNIVERSAL WINDING COMPANY

P. O. BOX 1605, PROVIDENCE 1, R. I.

Sales Offices: Boston • Philadelphia • Utica • Charlotte • Atlanta • Los Angeles

Winding and Twisting Machinery for Natural and Synthetic Yarns

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when the sun shines bright this shade stays right!

NATIONAL SOLANTINE® BLUE BLL

Here is a direct dye for cottons and rayons with an unusual combination of properties . . . especially when after-treated with Naccufix® or urea-formaldehyde. For instance:

In full shades the light fastness of National Solantine Blue BLL approaches that of vat dyes. Rayon dyeings of medium depth are rated 8, the A.A.T.C.C. maximum.

When after-treated with Naccufix, it has good "home laundry" fastness . . . comparable to that of developed dyes . . . and without loss of light fastness. When after-treated with urea-formaldehyde, the shade is brightened and made slightly greener with only a slight loss in light fastness.

When you again require an exceptionally light-fast direct blue with good wet fastness, National Solantine Blue BLL is well worth trying. For a working sample and shade card, get in touch with our nearest office.

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Providence Philadelphia Chicago San Francisco
Portland, Ore. Greensboro Charlotte Richmond Atlanta
Los Angeles Columbus, Ga. New Orleans Chattanooga Toronto

Allied Chemical

L. F. Dommerich & Co., Inc.

Executive and General Offices

271 MADISON AVENUE
NEW YORK 16, N. Y.

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Specifically designed to inactivate CALCIUM and MAGNESIUM PLUS all traces of IRON. In alkaline processing liquors, calcium and iron sequestering is accomplished SIMULTANEOUSLY.

CHEELOX B-14 is the new, all-purpose chelating agent which is soluble and stable at all temperatures in neutral, acid and alkaline solutions. For economical control of metal ions, regardless of the problem, Cheelox B-14 is the product to use.

To determine the effectiveness and economy of Cheelox B-14, we suggest you compare this new sequestering agent with the product you are now using.

Send today for a sample and technical data on the uses of Cheelox B-14.

From Research to Reality

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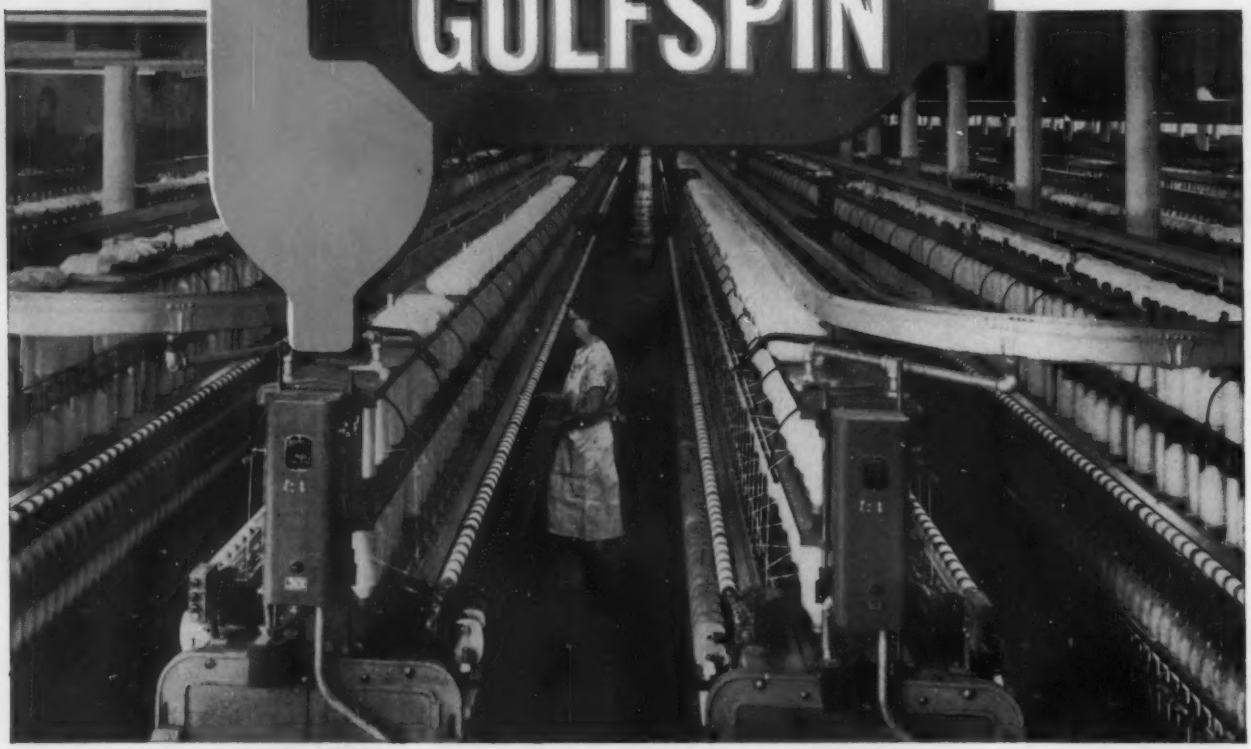
ANTARA
gaf

Keep spindles spinning true

with

GULFSPIN



Keep your spindles spinning true with a minimum of vibration and drag. Use Gulfspin, the spindle oil that resists sludge formation, that holds contaminants in suspension so they do not deposit on spindle parts, and that provides effective protection against rust.

You also reduce power costs with Gulfspin. Ordinary spindle oils often thicken after a few months of service, requiring increased power. Gulfspin shows no increase in viscosity after many months of service.

You'll find that these advantages all add up to smoother spindle operation, fewer ends down, and rock-bottom maintenance and power costs.

Contact a Gulf Sales Engineer at your nearest Gulf office today and give him a chance to prove the superiority of Gulfspin on your frames.

Gulf Oil Corporation • Gulf Refining Company

1822 Gulf Building, Pittsburgh 30, Pa.

GULF

THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS

To all textile mills:

Brainard® gives you UNIFORM HIGH QUALITY Strapping ...at no extra cost

● Brainard has complete control of manufacture . . . from ore to finished strapping. This integrated operation results in the best possible quality control. Every strapping order is carefully inspected by steel craftsmen at each step in the production process.

Brainard tensional strapping, produced in our own rolling mills, is furnished in continuous length, oscillated wound coils. It is coated with a high lustre, rust-resistant, black-painted or electro-galvanized finish.

Formed edge strapping is available for use on cylindrical packages where conventional strapping has a tendency to slip, such as on large rolls of paper.

The next time you order steel strapping, call your nearby Brainard representative. Let him show you how Brainard quality can improve strapping performance . . . at no extra cost! If you would like to have a Brainard representative call, write to Brainard Steel Division, Dept. T-5, Griswold Street, Warren, Ohio.

Brainard®
SHARONSTEEL
STEEL DIVISION
SHARON STEEL CORPORATION

COMPLETE STRAPPING SYSTEMS & MATERIALS • WELDED STEEL TUBING • ELECTRO-GALVANIZED STEEL • SCAFFOLDING • PALLET RACKS • BUILDING PRODUCTS

Offices in principal cities throughout the U. S.

For more information, write direct or use Reader-Service post card.

Cut Maintenance Costs,

with these scientifically

Dayton Thorobred Drop Box Pickers, with "3-Point Density Control," absorb loom shocks, protect loom parts and increase loom efficiency.

Test Dayton Pickers on *your* looms. You'll be amazed by the outstanding performance made possible by "3-Point Density Control."

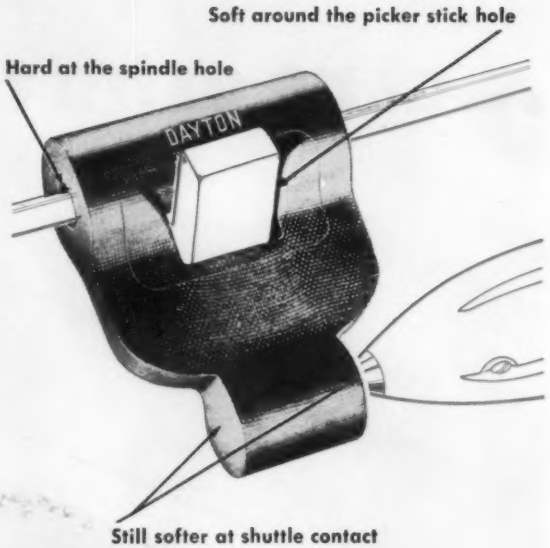
This exclusive feature gives the composition of every Dayton Picker 3 different densities at the 3 points of contact . . . right where they're needed!

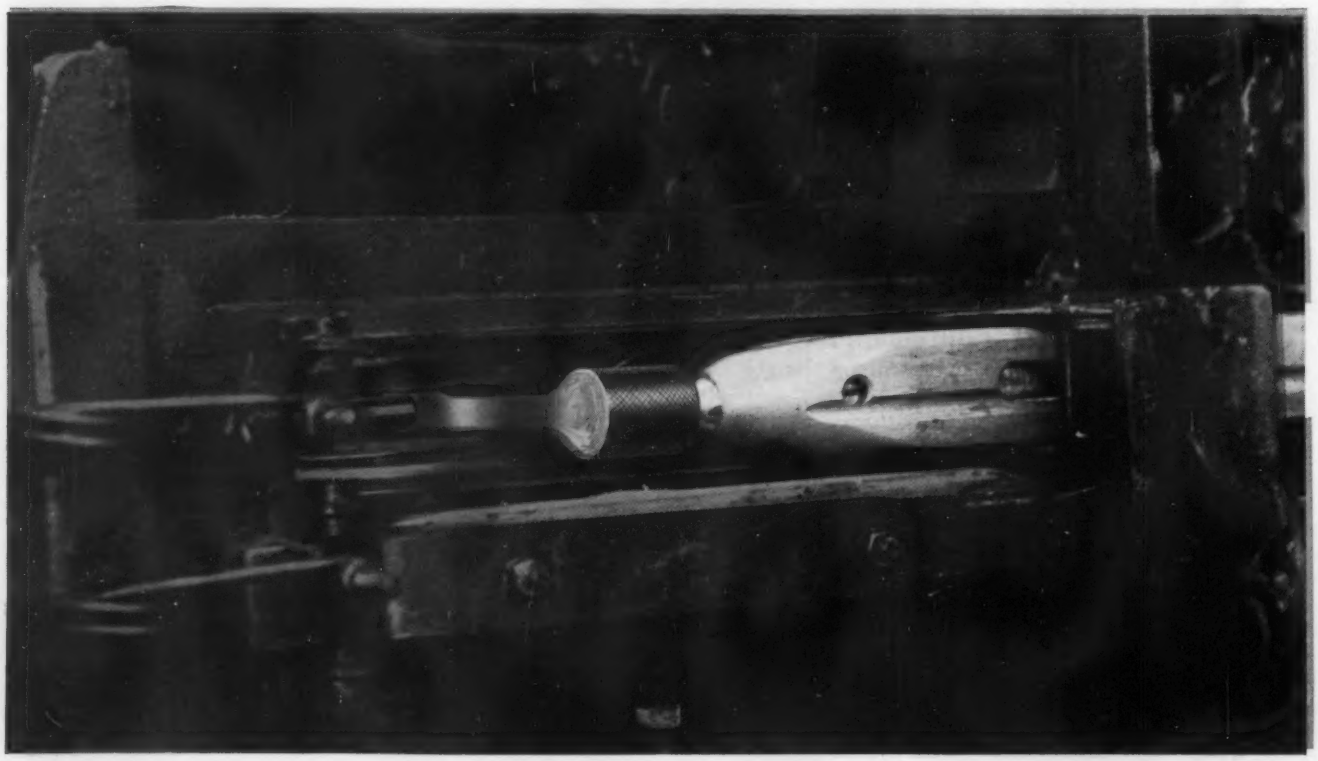
In the spindle hole of the Dayton Picker an integral, extra-hard composition bearing surface prevents wear . . . requires no lubrication.

The picker stick hole is provided with a softer composition to absorb the impacts of the picker stick.

At the picker shuttle contact point a still softer composition eliminates shuttle point loosening and helps assure a perfect throw every time.

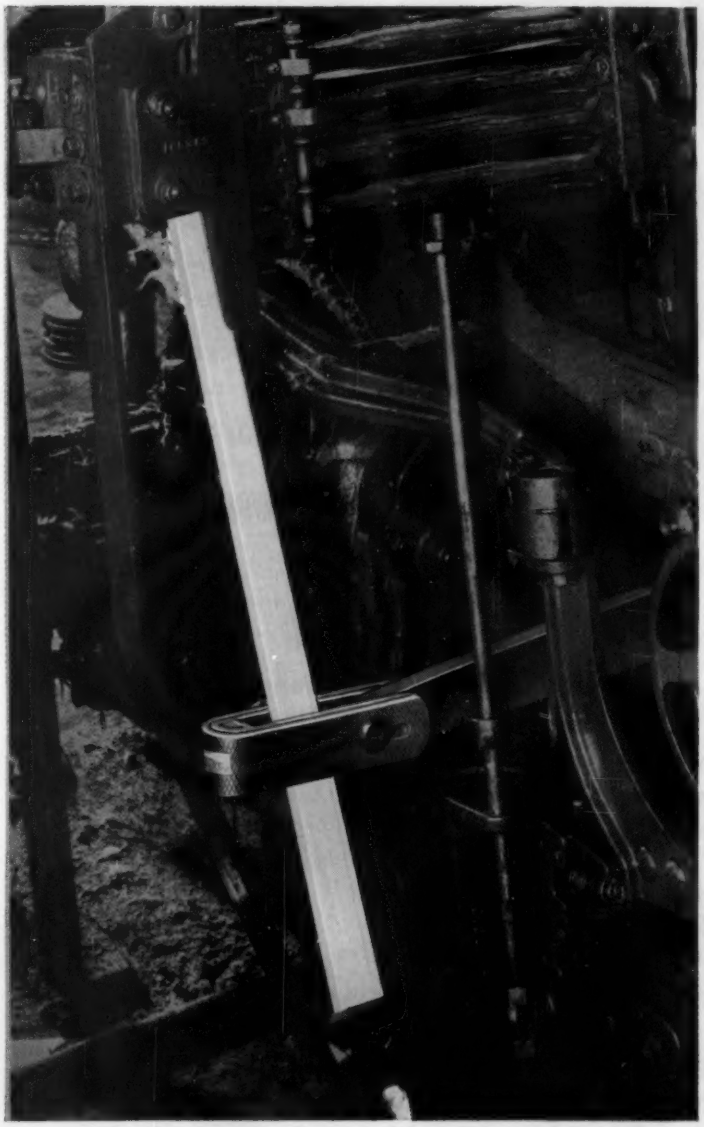
Equip your looms with Daytons . . . available in reversible and non-reversible types. See your loom man today or mail the coupon for details.





Improve Loom Output

designed Dayton Products!

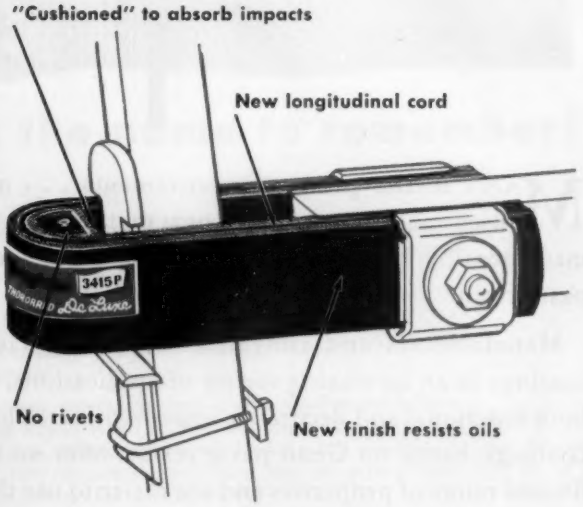


Dayton Thorobred DeLuxe Lug Straps are built in one piece with the cushion and strength for efficient, economical service.

Tests prove Dayton Thorobred DeLuxe Straps give twice the service life because they are scientifically engineered and built in *only* one piece.

A built-in molded plug absorbs the terrific thrusts of the picker stick . . . protects expensive loom parts. A special longitudinal cord in the center of Dayton Lug Straps provides *extra* strength . . . takes millions of picker sticks blows without "fatigue." Too, Daytons work perfectly in any weather — are not affected by temperature or humidity.

Daytons are available for all type looms. Contact your loom supply jobber or mail the coupon for all the facts.



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Dayco and Dayton Thorobred Textile Products for Better Spinning and Weaving

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401 S. Carolina National Bank Bldg., Greenville, S. C.
Send me additional information on cost-cutting Dayton Thorobred Drop Box Pickers and Dayton Thorobred DeLuxe Lug Straps.

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*Mill Name*_____

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News about

B. F. Goodrich Chemical *raw materials*

MANY textile product improvements . . . new uses . . . development of new markets . . . are made possible by the remarkable properties of Geon paste resin.

Manufacturers and converters are using Geon coatings in an increasing variety of applications, for both functional and decorative improvements. These coatings, based on Geon paste resins, offer an unlimited range of properties and are easier to use than traditional coatings. They are readily applied—with existing equipment—by spread coating, dipping, and spraying.

These GEON coating features can help you!

Better physical properties—high resistance to aging, gas, oil, abrasion, and many chemicals

No cracking—strength and flexibility are retained even at freezing temperatures

Better uniformity—viscosity, thickness, and penetration are easily and closely controllable

Heavier coatings—up to 25 mils in a single pass

No hazards—coatings are flame resistant, applied without volatile solvents

Greater eye appeal—unlimited color range; embossing and printed designs readily applied

Wider range of applications—any fabric, any weave, any thickness; for luggage, upholstery, tablecovers, drapes, wall-coverings, awnings, protective coverings, tapes, fire blankets, handbags or footwear

Coatings formulated from Geon paste resins need no milling or grinding. See how readily Geon paste resins can fit your operation. Please write Dept. BY-3, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B. F. GOODRICH CHEMICAL COMPANY
A Division of The B. F. Goodrich Company

GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.
GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

When it's textile SPOOLS

SONOCO

is the name to remember!

SONOCO offers a complete variety of standard spool types or can make them to fit your needs in special sizes. Widely used for fringe, tape, braid, narrow and wide fabrics, thread, yarn, cord, rope and many other items. Available with plain, printed and treated heads.

Inquiries should specify head diameter, traverse, bore and barrel diameter.

SONOCO also makes standard and special tapered base, single head thread spools in fibre and plastic. Barrels can be scored, smooth, flocked or ground. Plastic spools available in a wide variety of solid colors. Fibre may be ordered with colored lacquer tips for identification.

SINGLE HEAD SPOOLS, TOO!

Sonoco Products Company

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SERVES THE WORLD
PAPER CARRIERS
REG. U.S. PAT. OFF.

Push-button

No special attendant

Hermetic Centrifugal Water Chiller starts, stops, runs automatically . . . adjusts to varying cooling requirements with power savings in almost direct proportion to load requirements!

PUSH A BUTTON TO START—from there on this TRANE CenTraVac water chiller starts, stops and modulates—*automatically!* No special attendant is needed! The saving is immediate and real—but only the *beginning* of the savings that are still to come.

CENTRAVAC ADJUSTS ITS USE OF POWER automatically, in almost direct ratio with the cooling load, anywhere from 100% down to 10% of capacity for partial operation without the usual penalty in operating costs. *You save with every load variation . . . which can be seasonal, daily, hourly!*

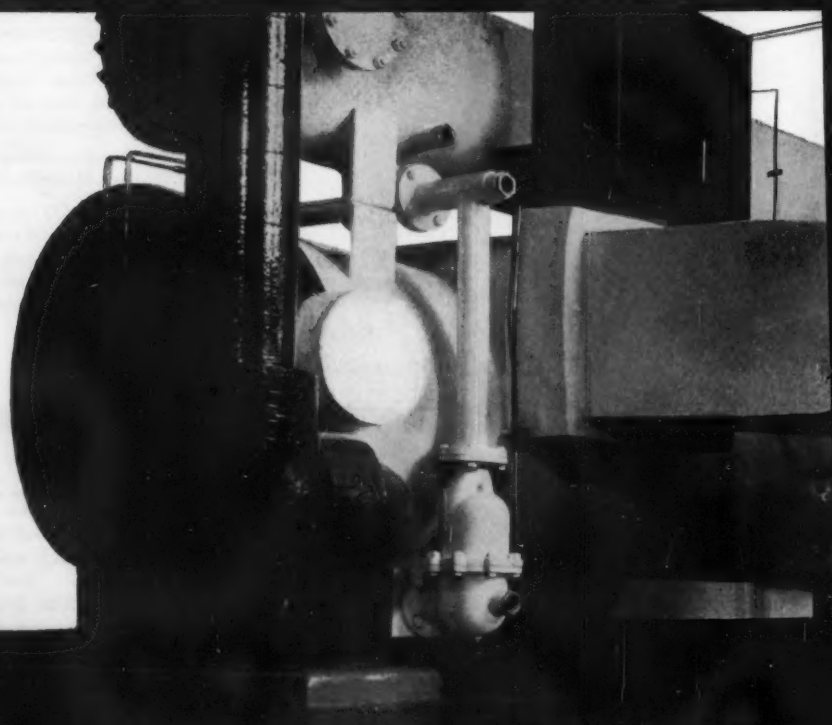
NO COSTLY FREON LEAKAGE because TRANE CenTraVac is a true *hermetic* centrifugal compressor.

TRANE

MANUFACTURING ENGINEERS

One source, one responsibility for:
Air Conditioning • Heating • Ventilating
Heat Transfer Equipment

The Trane Company, La Crosse, Wis. • Eastern Mfg. Div., Scranton, Pa. • Trane Company of Canada, Ltd., Toronto • 90 U.S. and 17 Canadian Offices



air conditioning!

needed with Trane CenTraVac®!

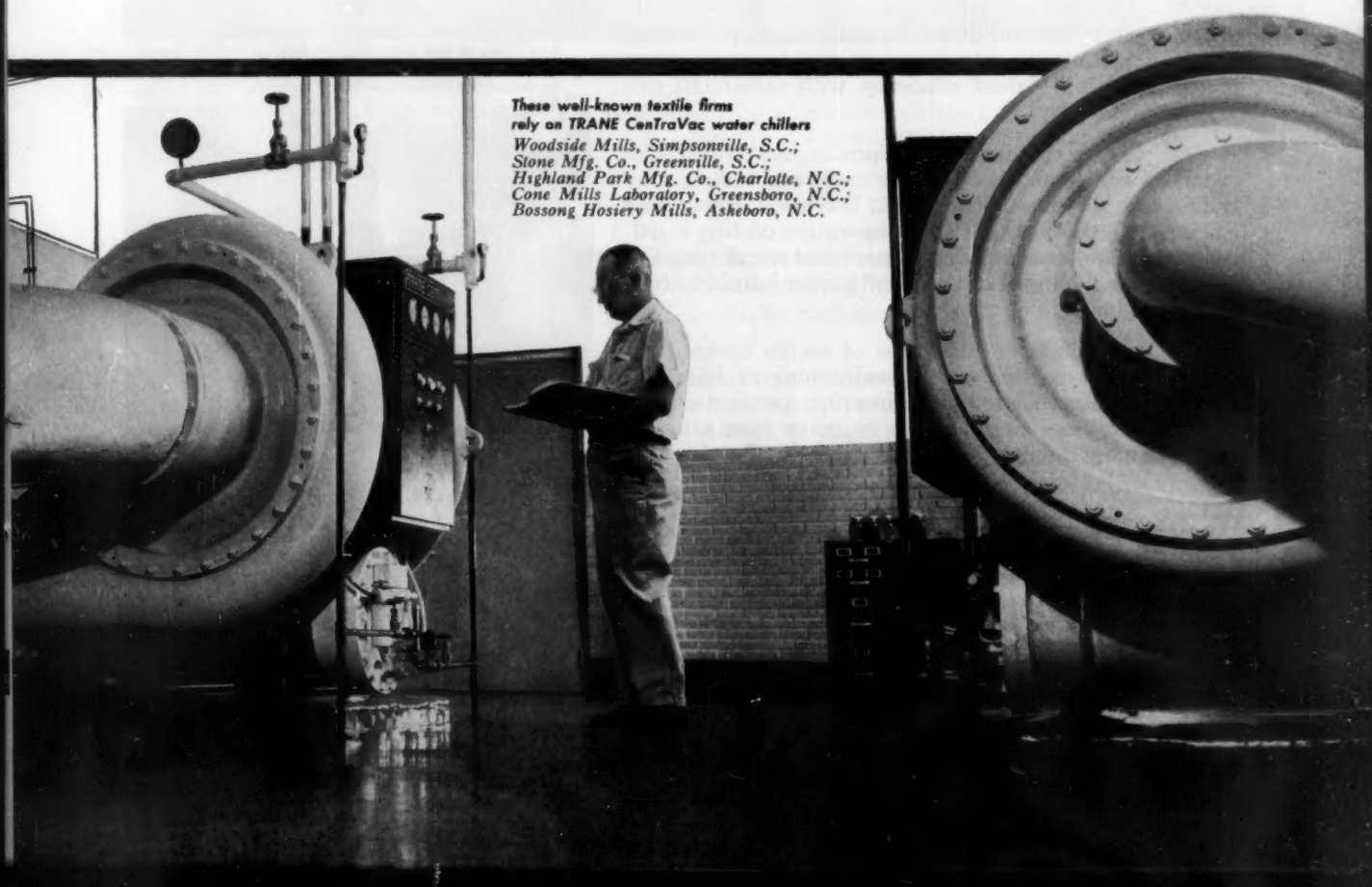
It's Freon-tight—all working parts inside—no shaft seals to leak.

LESS MAINTENANCE means another saving for you. And it's easy to prove. TRANE CenTraVac has only *one* major moving part . . . only *two* pressure lubricated bearings. *And no gear box, no shaft seals!*

LOWER INSTALLATION COSTS—because there's no costly multi-level base to install! TRANE CenTraVac may be set directly on any level concrete floor strong enough to support it. Moreover, the wider range of sizes—45 to 400 tons capacity—makes it easy to meet any load requirement.

And if you want to profit still *another* way, remember this: CenTraVac's *stable performance* keeps air conditioning at design conditions—for peak performance of men, machines, materials!

For the complete savings story, call your nearest TRANE Sales Office or write TRANE, La Crosse, Wis.



These well-known textile firms rely on TRANE CenTraVac water chillers

Woodside Mills, Simpsonville, S.C.;
Stone Mfg. Co., Greenville, S.C.;
Highland Park Mfg. Co., Charlotte, N.C.;
Cone Mills Laboratory, Greensboro, N.C.;
Bossong Hosiery Mills, Asheboro, N.C.

Coats and Clark Toccoa Finishing Plant
Completely Air Conditioned by Bahnson

The gassing department is kept at 80° F. and 45% relative humidity at all times. Gasser exhaust hoods are connected to axial-flow fans which discharge air above the roof.

The complex air conditioning requirements of this newest yarn and thread finishing plant were solved by a completely integrated system which serves every room, providing highest efficiency with maximum employee comfort.

Air conditioning equipment, as well as special exhaust systems and hoods, were made and installed by Bahnson to specifications by P. L. Davidson, Consulting Engineer, Greensboro, N. C. Evaporative cooling is utilized in the wet-finishing department and warehouse, full refrigerative cooling elsewhere, and proper humidity control throughout.

Whatever *your* type of textile operation—whatever your particular air conditioning or humidity problem—Bahnson has the engineering, production, installation and servicing facilities to assure your satisfaction. For more information, write today for Catalog 103.

* **91 OF THE TOP 100**

Of the 100 top textile manufacturing firms in the nation, 91 are users of Bahnson equipment ... high testimony to Bahnson engineering skill.

*COATS & CLARK, INC.—One of the top 100

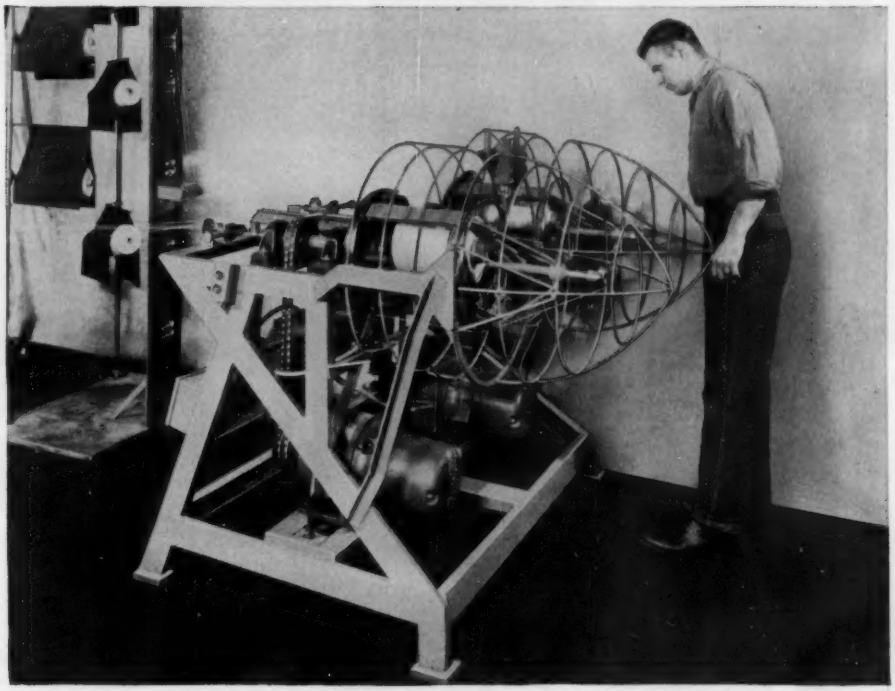
Aerial view of new Coats & Clark plant at Toccoa, Georgia—378,000 sq. ft. of floor space, comfortably air conditioned the year around.

Basement conditioning ducts can be seen at left, and portions of the pressure-extractor exhaust systems are shown at right.

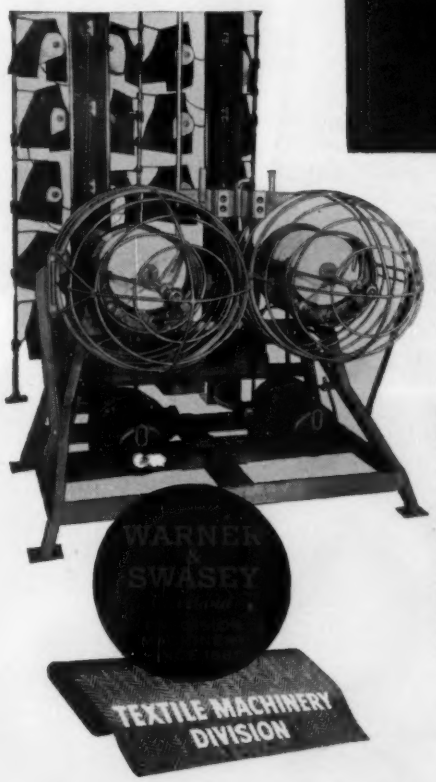
Bahnson
COMPANY
WINSTON-SALEM, N. C.

AIR CONDITIONING HUMIDIFICATION CLEANING

Whirlwind* TWISTER WINDER twists at speeds up to 11,000 T.P.M. and winds precision sales packages *IN ONE OPERATION!*



- 2 for 1 twist—.85 to 7.76 T.P.I.
- Large precision sales packages
- 2 to 120 ply count, or higher
- 2,000 to 50,000 denier, or equivalent
- Handles all materials
- Rugged design—easy to operate
- Requires minimum floor space



YES, now you can simplify your twisting and winding operations —and *cut costs*—with the new Whirlwind Twister Winder.

This new machine imparts two turns of twist for every turn of the spindle, with a wide range of twist control from .85 to 7.76 T.P.I. It slashes costs on twisting and winding a variety of plyed cords, yarns, twines and cordage from 2,000 to 50,000 denier, or equivalents. And in one operation you get precision wound, knotless sales packages up to 30 pounds or more, either cone or cylindrical.

A cost analysis of one manufacturer's twisting and winding operations on jute wrapping twine resulted in *70% savings* on the new Whirlwind. If you'd like savings like this, call in your Warner & Swasey Field Engineer. He'll be glad to arrange an analysis of processing your materials on the new Whirlwind Twister Winder.

*Trade-Mark

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WORLD FAMOUS TRADE MARKS OF THE
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Southern

QUALITY PRODUCTS

. . . Over half a century in developing and producing the equipment you need to maintain the standards required today.

SERVICE FACILITIES

. . . Over half a century in developing proper service by locating plants, equipment, and stocking them all for the convenience of the Textile Field.

Textile Supply Co., Dallas, Texas • Albert R. Breen, Chicago, Ill.

Parks-Cramer

CERTIFIED® CLIMATE

Automatic Airchanger

Gradumatic® Humidification

Psychrostat® Regulation

Evaporative Cooling

Automatic Filters for air and water

Laboratory Air Conditioning

Since 1904 when Stuart W. Cramer originated the term "AIR CONDITIONING," Parks-Cramer humidifying and Certified Climate systems have been helping hundreds of textile mills make more and better yarns and fabrics, at less cost.

The Parks-Cramer line is complete, from single humidifiers no larger than the palm of your hand, to central station systems combining humidifying, heating, cooling by evaporation or refrigeration, ventilating, filtering, air circulation — all under close, reliable, economical automatic control.

Our engineers are interested in the study and solution of any air conditioning problem in your mill, whether simple or complex — large or small.

Central Station Systems

Booster Humidification

Refrigerated Cooling

Turbomatic® Humidification

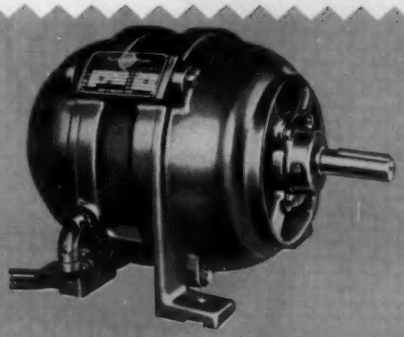
Yarn and Cloth Conditioning

Gradual Acting Controls

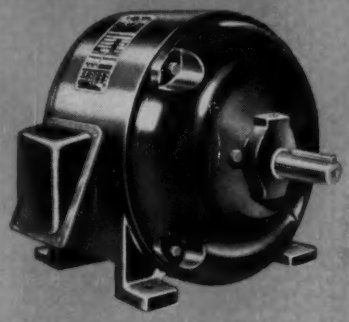
Parks-Cramer Company

Design · Manufacture · Installation · Service
Certified Climate and Traveling Cleaner Systems

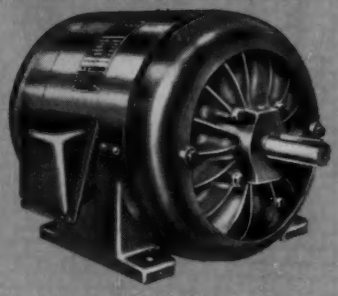
FITCHBURG, MASS. • CHARLOTTE, N.C. • ATLANTA, GA.



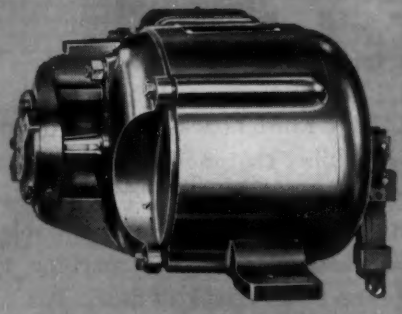
FOR LINT-FILLED ATMOSPHERES *specify* a DIEHL Type "DIT" Lint-Free Motor. In all mill operations where fly is present, the special construction of this motor assures protection and long life. Special features—rigid end cover construction and Hyatt roller bearing at pulley end.



FOR GENERAL MILL APPLICATION *specify* a DIEHL Type "DI" Standard Motor. An economical and versatile power plant, it is adaptable to compressors, pumps, conveyors, air conditioners, blowers, etc.



FOR FINISHING AND DYE PLANTS *specify* a DIEHL Type "DIF" Totally Enclosed Fan-Cooled Motor. Complete protection of the internal parts is provided by a full enclosure; high efficiency is aided by the cooling effect of the large external fan.



FOR DRIVING LOOMS *specify* a DIEHL Power Transmitter. The construction and "built-in" inertia of this integrated unit permit maximum weaving speeds with greatest operating efficiency.

for every textile application

SPECIFY A DIEHL MOTOR!

These are only a few of the many types of general and special-purpose motors DIEHL offers to satisfy every mill requirement. Over 68 years of motor building experience makes DIEHL motors your best buy!

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DIEHL MANUFACTURING COMPANY
Electrical Division of THE SINGER MANUFACTURING COMPANY
Finderne Plant, SOMERVILLE, N. J.

Please send me the following bulletins:

- ☐ New Type "D" Motor Bulletin No. TW-3304
- ☐ Consolidated Motor Catalog and Price List No. TW-3310
- ☐ Power Transmitter Bulletin No. TW-3126

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Company_____

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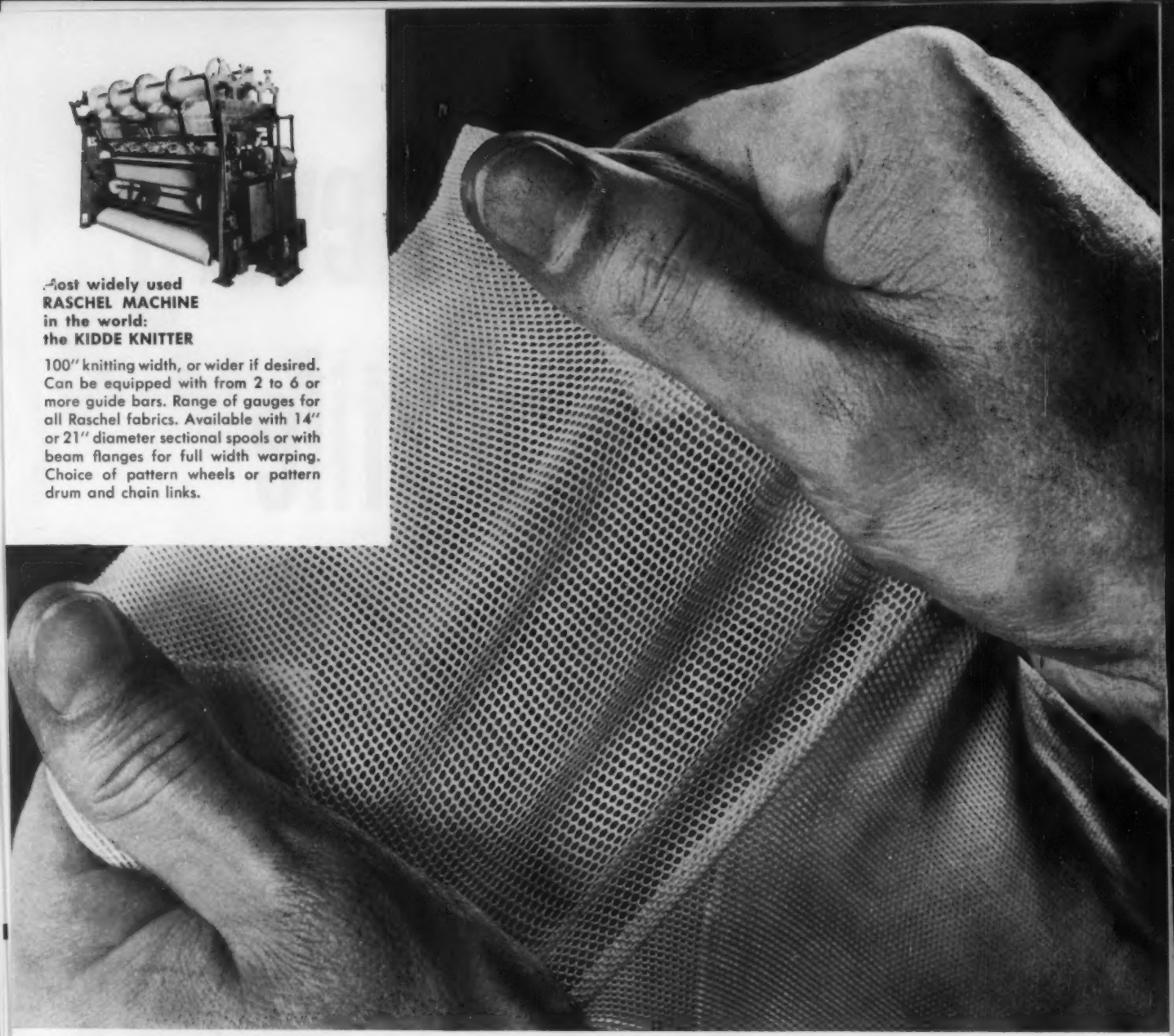
AVAILABLE IN A WIDE RANGE OF TYPES AND SIZES

For more information, write direct or use Reader-Service post card.

Most widely used RASCHEL MACHINE in the world: the KIDDE KNITTER

100" knitting width, or wider if desired. Can be equipped with from 2 to 6 or more guide bars. Range of gauges for all Raschel fabrics. Available with 14" or 21" diameter sectional spools or with beam flanges for full width warping. Choice of pattern wheels or pattern drum and chain links.



How fast should you run a Raschel machine on 4-bar elastic fabric?

Experienced knitting department supervisors know that *you cannot measure a Raschel machine's output by the minute*. Instead, the wise knitter thinks in terms of pounds of first-quality fabric produced per shift, per week, or per month.

This kind of intelligent evaluation of production rates has made the KIDDE Knitter the world's most widely used Raschel type warp knitting machine. For the KIDDE Knitter backs up high "per minute" speeds with reliability that maintains these speeds over long periods with next-to-no down time for repairs . . . keeps defects well below the acceptable limit for first-grade fabric. It's a versatile machine, too. No matter what kind of Raschel-knit fabric you produce, you'll find that the Model E KIDDE Knitter will do the job. For complete information, write us today.

Kidde

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS
BEAMERS • CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS

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The word KIDDE is the trade mark of Walter Kidde & Company, Inc., and its affiliated companies.

You Get MORE THAN JUST AMMONIA

When You Order from *Nitrogen Division!*

You get experience

Anhydrous Ammonia was first produced in this country in 1890 by the Allied Chemical organization. Continuous development since then has led to an accumulation of Anhydrous Ammonia "know-how" unequaled in the industry!

You get multi-plant production

Nitrogen Division has three producing locations. This means you are *always sure* of supplies when you order from Nitrogen Division! Each plant manufactures to the extremely high standards originally set for industry by Nitrogen Division.

You get strategic location

Each of the three plants is located on water, on key rail lines and highway facilities in the heart of heaviest consuming areas. Plant locations at Hopewell, Va., South Point, Ohio and Omaha, Nebraska assure rapid delivery, even on short notice.

You get finest technical service

Only Nitrogen Division, with its unmatched years of experience, can offer such highly competent technical service. Free to all users and potential users of Ammonia, Anhydrous and Liquor, it brings you the benefit of wide experience gained from participation in all types of production and research programs.

Call *Nitrogen Division* today

Find out how Nitrogen Division can help you. Whether your problem is service, delivery or research, you'll be nearer the solution as soon as you pick up the phone. Don't delay; call today!

Anhydrous Ammonia is shipped in tank cars, tank trucks and in 150, 100 and 50-lb. cylinders. Ammonia Liquor is shipped in tank cars only.

NITROGEN DIVISION

ALLIED CHEMICAL & DYE CORPORATION
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- Ethanolamines
- Ethylene Oxide
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- Formaldehyde
- Nitrogen Tetroxide
- Nitrogen Solutions
- U.F. Concentrate—85
- Fertilizers & Feed Supplements

Up Against A Card Room Problem?

CARD CLOTHING

IT'S wise, then, to turn to a TUFFER man. He'll be on the job — RIGHT IN YOUR OWN MILL— and help you work out a solution.

He'll come up with *workable* suggestions and recommendations to kick up production and at the same time improve the quality of your material.

You'll get that valuable ON-THE-SPOT PERSONAL ATTENTION that TUFFER men have been giving to textile mills for years.

Contact us direct at Worcester, Massachusetts, or at our Southern plants at Atlanta, Georgia or Gastonia, North Carolina. Your call will bring immediate action, without obligation.

B-2

For Example

One mill, faced with what its president called a "terrible mess in the card room," reported:

"Your man left us in a position to handle our job successfully and with a personnel that he had trained for us. Our weaving efficiency, now over 90%, is about 10% above what it was. We give him all the credit — what he accomplished would have taken us months to do."

Manufacturers of Card Clothing since 1866

HOWARD BROS.

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Southern Plants: Atlanta, Ga., and Gastonia, N. C.

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TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Re-covered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plants • Midgley Patented, and Howard's Special Hand Stripping Cards • Top Flat Chains

NITREX

makes modern "crinolines" really

STAND OUT

Modern as fashion's demand for petticoats that make bouffant skirts stand out is Naugatuck's special Nitrex® latex which gives them just the right combination of stiffness and flexibility. This is but one of an extensive family of aqueous dispersions of natural or synthetic latex and plastics produced by Naugatuck.

Each is custom-compounded for the exact job it is to perform, and is shipped *ready for use* from either Naugatuck or our Los Angeles plant. The almost endless variety of Naugatuck's Kralac®, Nitrex, and LOTOL® compounds provides the textile wet-processor a broad range of latex-base binders, finishes and printing assistants to help him obtain just the result desired... permanently!

Unlike many other materials formerly employed for these purposes, Naugatuck's latices don't wash out. The weave stability, hand and other properties they impart to the fabric *stay with it!*

Naugatuck, the world's leader in the field of latex compounding, offers you not so much a specific product as it does a *service.* A letter, wire or phone request will bring you expert processing assistance and result in the compounding of a material to fit exactly your particular processing requirements.

World's Largest Latex Producer and Compounder

Naugatuck Chemical

Division of United States Rubber Company
Naugatuck, Connecticut

US RUBBER

BRANCHES: Akron • Boston • Charlotte • Chicago • Los Angeles • Memphis • New York • Philadelphia **IN CANADA:** Naugatuck Chemicals, Elmira, Ontario
Rubber Chemicals • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices • Cable Address: Rubexport, N. Y.

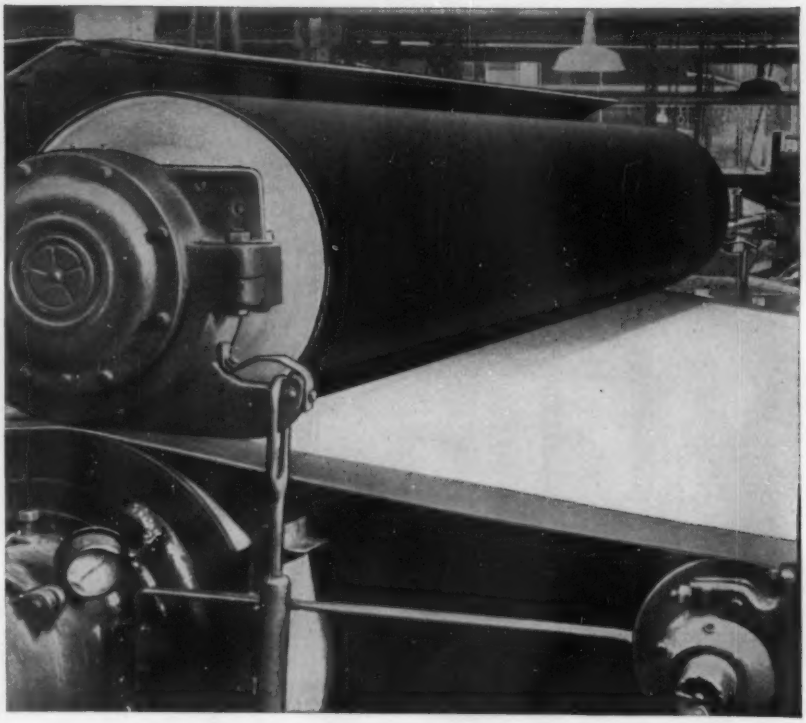
HOW TO BUY RUBBER COVERED ROLLS

TO SPEED PRODUCTION AND REDUCE MACHINE DOWNTIME

Look for a company that has developed a superior rubber to metal bond . . . a company with the experience and facilities to custom-compound roll covering to your specific requirements.

Cracking, hardening, corrugation, or separation of the rubber from the metal roll core are frequent sources of trouble with ordinary rubber covered rolls . . . resulting in costly losses in production, quality and schedules. Rubber covering for your rolls should be compounded to prevent these causes of machine downtime in your *particular* operations. The rubber should also be permanently bonded to the metal to prevent cover separation that ultimately leads to roll failure. Make certain the company that covers your rolls has the ability to produce the correct rubber compound for your needs . . . the equipment to vulcanize and grind your roll covering to your specifications . . . the facilities to handle your job regardless of size.

Specify rubber covered rolls custom-made by experienced roll covering specialists . . . specify Manhattan Rubber Covered Rolls.



MANHATTAN RUBBER COVERED ROLLS

Manhattan roll covering specialists have eliminated the major causes of expensive machine downtime to give you "More Use per Dollar" with Manhattan Rubber Covered Rolls. An exclusive Manhattan process provides an inseparable bond of rubber to metal to eliminate separation of the rubber cover from the metal roll core. Manhattan Rubber Covered Rolls are compounded to give you high-speed, uniform production under all working conditions . . . they won't harden, crack, corrugate or oxidize.

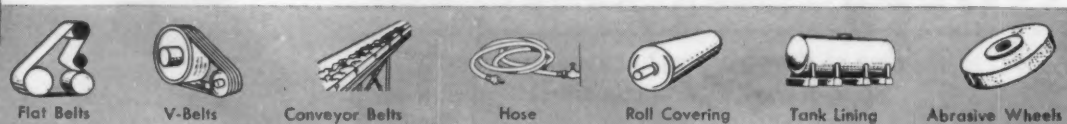
Custom-made to meet your specific working requirements, they assure permanent, uniform and correct density. Manhattan's modern precision roll grinding and vulcanizing facilities enable experienced craftsmen to handle the largest rolls in use today . . . and insure accuracy of dimension within .002". Call an R/M roll covering specialist to discuss your requirements. He will show you how you can get long, trouble-free service—"More Use per Dollar"—with Manhattan Rubber Covered Rolls. RM 519

ROLL COVERING PLANTS AT PASSAIC, N. J. — NEENAH, WIS. — NORTH CHARLESTON, S. C.

R/M

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.



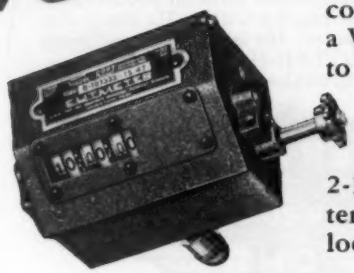
Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings • Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Bowling Balls

For more information, write direct or use Reader-Service post card.

In Spinning...

New Veeder-Root 2-3-4 Convertible Hank Counters are easier to read, reset and maintain. And they are built to give you years of accurate facts-in-figures that help toward closer production *Count*rol.

Weaving...



Here's the combination to count on . . . *on every loom* . . . a Veeder-Root Cut Meter (left) to light a light or stop the loom at a pre-set woven yardage, *assuring uniform cuts of cloth* . . . and a new Veeder-Root 2-3-4 Convertible Pick Counter to keep accurate count of loom production on each shift.

Knitting...

For any type of knitting machine, Veeder-Root makes the counters you need to control your production. These new Revolution Counters, with the same advantages as the new 2-3-4 Convertible Hank and Pick Counters, can also be geared to record racks, or racks and tenths. In Fact, In Any Department of Any Type of Textile Mill . . .

VEEDER-ROOT

IS "THE NAME THAT COUNTS"

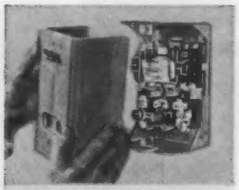
HARTFORD 2, CONN.

GREENVILLE, S. C.
Box 297, Tel. Greenville 3-1371

Now Cutler-Hammer ★★★ Motor Control in NEMA Size 2 for motors up to 25 HP*

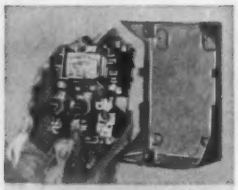
It is here . . . Cutler-Hammer ★★★ Motor Control for your larger motors, NEMA Size 2 Starters with the famous three stars on the Cutler-Hammer nameplate. The three stars that stand for three entirely new standards in motor control performance and value. Star #1: Installs easier. So much easier that installation savings often exceed the cost of the control. Star #2: Works better. So much better that this control often pays for itself many times over in just the production interruptions it avoids. Star #3: Lasts longer. So much longer that this control *never* needs maintenance care or expense in 90% of its uses. If you are one of the many users who have proved these are facts, not mere claims, you will welcome the news that your larger motors can now have this same control. Order Bulletin 9586, Size 2, today from your nearby Cutler-Hammer Authorized Distributor. He is stocked and ready to serve you. CUTLER-HAMMER, Inc., 145 St. Paul Ave., Milwaukee 1, Wisconsin.

CUTLER-HAMMER
★ ★ ★
MOTOR CONTROL
C-H



3-D Accessibility

Removing the wrap-around cover bares the entire starter for three-directional accessibility. It is wide open at front and both sides. You can see everything and reach anything. Wiring the starter is simplified and routine inspection is made so easy and complete nothing is ever neglected.

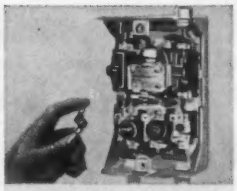


Unit Panel Construction

The entire starter mechanism can be removed from its case by simply loosening three screws. With mechanism out of the way, mounting case, connecting conduit and pulling wires is a cinch. A great time saver. No skinned knuckles. No damaged starter mechanisms.

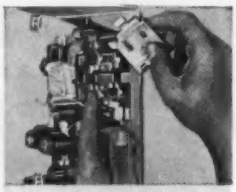
Full Three-Phase Protection

Only *three* overload relays can provide positive three-phase protection to stop needless motor burn-outs and production interruptions. And only Cutler-Hammer offers three overload relays in *standard* starters without the excessive costs and delays of special starter constructions.



Adjustable Sensing Coils

Only the accurate adjustment of overload protection permits motors to work harder without damage. Now more important than ever with newer type small frame motors. Only C-H offers adjustable load sensing coils . . . for 3% loading accuracy instead of the 10% to 12% in all other controls.

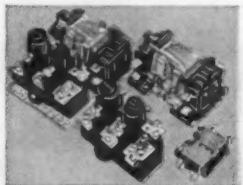


Superlife Vertical Contacts

Now the famous C-H dust-safe vertical contacts have been doubly improved. New light-weight design cuts bounce to reduce arcing. Also, arcing is now pressure-quenched. Contact maintenance care and costs are ended for all time in all normal motor control uses.

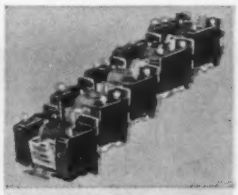
For Control Panel Designers

The new Cutler-Hammer ★★★ Motor Control offers an array of spectacular new features to provide many exclusive advantages in circuit planning, compact panel design, better motor protection and better control performance. Be sure you have complete design data on this advanced equipment. Write or wire today.



New Control Components

All parts of the new C-H ★★★ Starters in NEMA 0, 1 and 2 Sizes are available as components; also complete starters on convenient unit panels. Electrical interlocks are available to provide additional control circuits when desired.



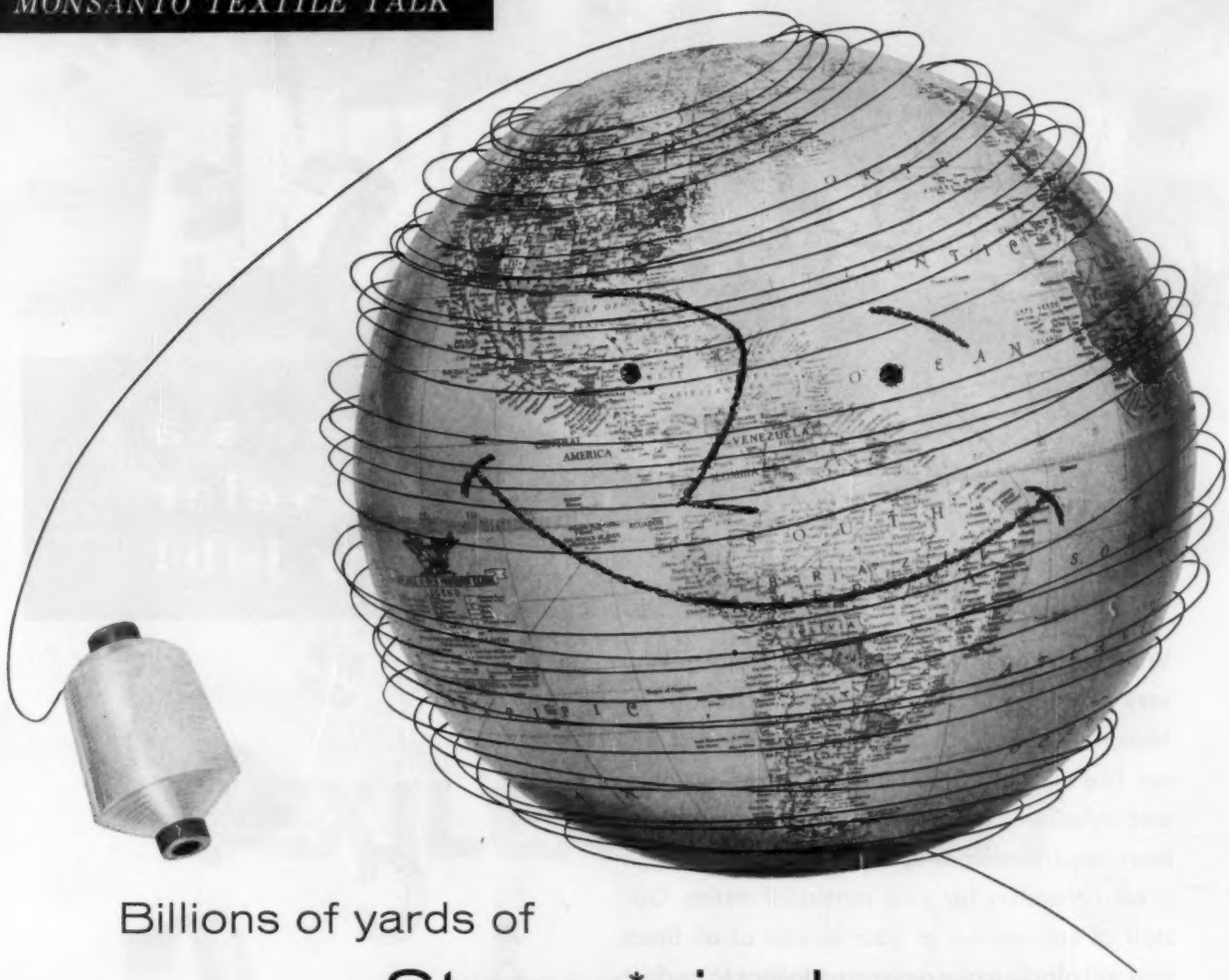
New Control Relays

Finest of control relays. 10 and 15 Amp. 2-3-4-5-6 poles. All contacts instantly convertible from NO to NC or vice versa. NO or NC status seen at a glance without removing cover. New armored magnet coils color coded for voltage and frequency.

New SD & HD Pushbuttons

New standard duty pushbutton station with pilot light offers many exclusive features, typical of complete C-H line. Watch soon for announcement of the revolutionary new line of C-H heavy-duty all-tight one-hole mounting pushbuttons.

MONSANTO TEXTILE TALK



Billions of yards of

Stymer* sized warps

have improved the weaving of

quality cloth!

STYMER S is the name of a special resin that Monsanto pioneered for the synthetic sizing of filament acetate yarn.

It saves time and labor, and its actual cost per thousand yards of warp is highly favorable.

The uniformity of this Monsanto resin simplifies the preparation of the sizing solution. Large mixes can be stored for long periods. Stymer S solutions are stable—will not mildew or sour.

When properly dried, Stymer sized warps separate at the lease rods with exceptional ease. This property, together with the fact that Stymer S does not gel in the size box during stops, makes it possible to lease in size.

The efficiency of weaving Stymer sized warps has been proved on bright and dull yarns, on high and low sley, on taffetas, plain weaves, twills, French crepes, tissue failles, satins, shirtings, luana, shantung, flat crepes, Bedford cords and georgettes.

Any fabric sized with water-soluble Stymer S can be stored indefinitely before de-sizing. Stymer S is easily removed by a mill scour, followed by a thorough rinsing.

Monsanto's technical staff stands ready to assist you with any sizing problems you may have. Write Monsanto Chemical Company, Plastics Division, Dept. TW-5, Springfield 2, Mass.

For efficient, uniform sizing . . . specify

Stymer S

MONSANTO

*STYMER: REG. U. S. PAT. OFF.

There's a right traveler for every job!

When selecting travelers, you can usually get the very traveler you need by taking advantage of National's long, specialized experience. From our line of over 18,000 different sizes, weights, and styles, we can supply travelers promptly for most requirements and, when necessary, design special travelers for your particular needs. Our staff of engineers is at your service at all times and will gladly make recommendations to perfect your spinning and twisting.

National-Sterling Ring Travelers . . . precisely balanced, carefully tempered and smoothly finished . . . are designed for higher production of more uniform, high quality yarns. Ask us to recommend the *right* travelers that will boost the profits of your mill. National Ring Traveler Company and Sterling Division, 354 Pine Street, Pawtucket, R. I. Southern Office and Warehouse, 1215 East Fourth Street, Charlotte, N. C.

STANDARD IN U. S. A.
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NATIONAL RING TRAVELER CO., PAWT., R.I., U.S.A.

FOR SPINNING AND TWISTING ALL NATURAL AND SYNTHETIC FIBRES

ANNOUNCING!

...A TOTALLY NEW NEEDLE LUBRICANT for fine-gauge full-fashioned and seamless knitting machines

SHELL VEXILLA OIL 117

1. **12 TIMES GREATER RUST PROTECTION** than the best current oils . . . during both operating and shutdown periods.

2. **Eliminates green soap formation,** and minimizes machine oxidation.

3. **Controls nylon size deposits,** and permits easy cleaning during shutdown periods.

4. **Very low surface tension,** resulting in increased wetting and lubrication.

5. **No gummy deposits . . .** contains no fatty acids.

Shell VEXILLA OIL 117 establishes a new set of standards in knitting machine lubrication. Test it in comparison with the oil you are using. Write for further information.

SHELL OIL COMPANY
50 West 50th Street • New York 20, New York

SHELL

HOW STAINLESS STEELS BOOST DAY-TO-DAY SAVINGS in textile production

Crucible Rezistal® Stainless Types for Textile applications

STAINLESS TYPE	NOMINAL % Cr	Ni	Other	USED FOR
302	18	8		General Purpose
303	18	8	S	Free-machining
304	19	9	Low C	Welding
309	25	12		High Temperature
310	25	20		Higher Temperature
316	18	12	Mo	High Corrosion-resistance
317	19	13	Mo	Higher Corrosion-resistance
318	18	12	Mo, Cb	Welding (stabilized)
321	18	8	Ti	Welding (stabilized)
347	18	8	Cb	Welding (stabilized)

To plant and mill operators, stainless steel is not a luxury metal—but the most economical construction material they can use wherever there's need for its exceptional corrosion-resistance, strength and cleaning ease.

Add to these properties its remarkable resistance to wear and abrasion—and you can see why Crucible stainless steels mean longer service life, increased production, reduced maintenance and cleaning time, fewer replacements and repairs... throughout the textile plant.

See how stainless steel can boost day-to-day savings in your plant. Get practical, economy-minded advice on stainless selection, fabrication and maintenance in your free copy of "Making the Most of Stainless Steels in the Textile Industry." Send for it today. Or call your local Crucible representative. *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 22, Pa.*

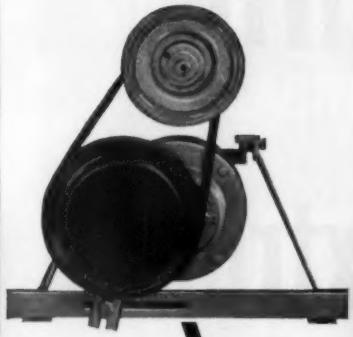
CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

For more information, write direct or use Reader-Service post card.

Heart of the Card...a shaft-mounted drive as modern as the newest "miracle" fabric

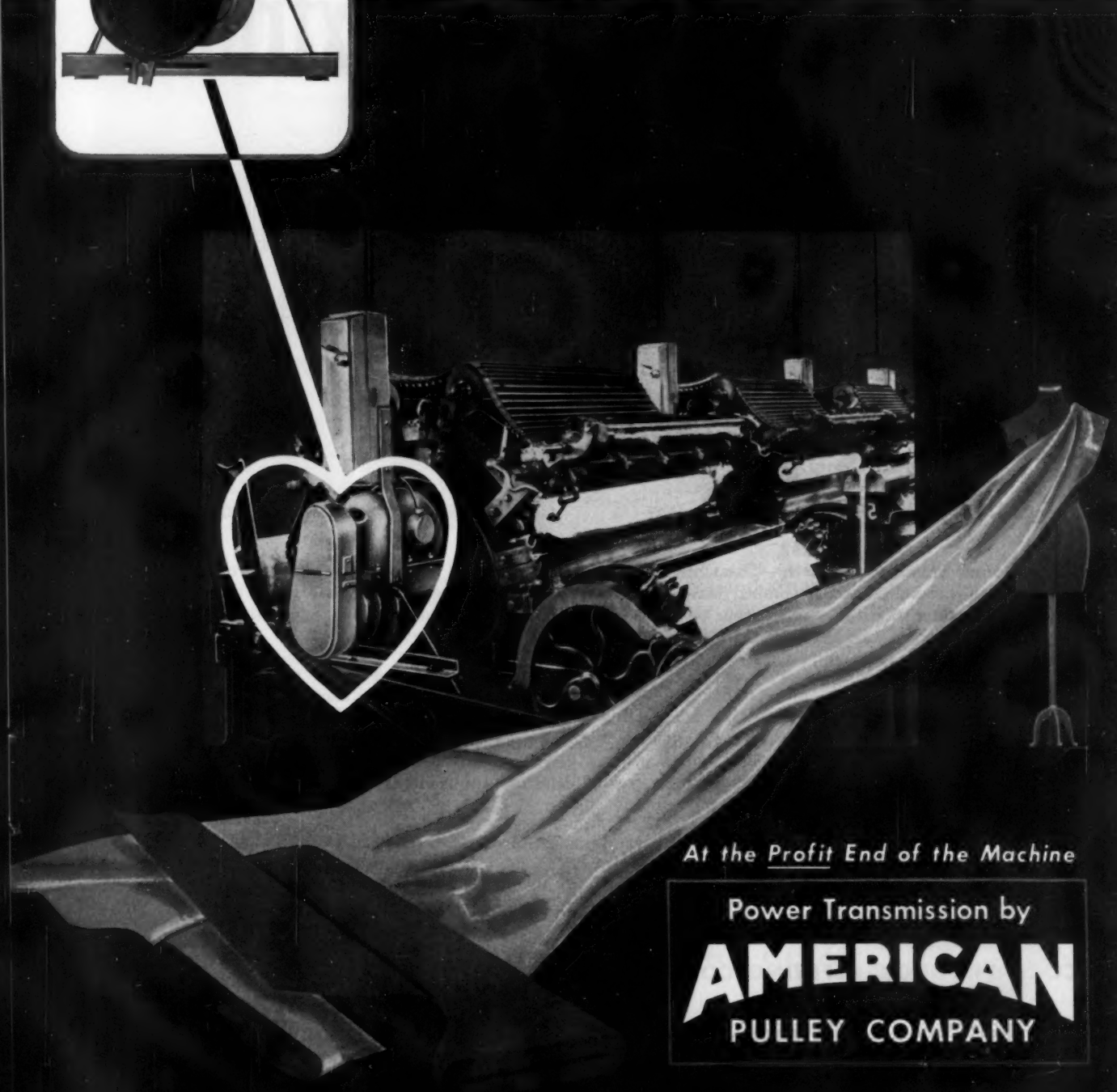
The American Individual Card Drive features a centrifugal clutch which brings the card up to speed in 45 seconds—permits hand stripping while card is coming up to speed—eliminates necessity of jogging. American Card Drives require no special motors or starting mechanisms, no expensive belting. One V-belt does the work of flat-belting costing about 15 times as much!



The American Individual Card Drive removes one obstacle to card room efficiency—line shafting, thus permitting better card room layout, better lighting and ventilation, and ending falling lint or fly. It improves quality, permits greater flexibility of machine speed and allows you a 25% speed variation on each card for maximum production and peak quality of any fiber you process.

This American "packaged" drive is simply and compactly constructed, easy to install, and completely enclosed for safety. It mounts directly on the card cylinder shaft, requires no floor space, makes cleaning easier. American Card Drives prevent card-arch deflection and end the risk of shut-down from main drive failure.

If you're not already using American Individual Card Drives write for the complete story on their advantages or see your distributor. The American Pulley Company, 4226 Wissahickon Ave., Philadelphia 29, Pa.



At the Profit End of the Machine

Power Transmission by

AMERICAN

PULLEY COMPANY

CORN PRODUCTS REFINING COMPANY

presents

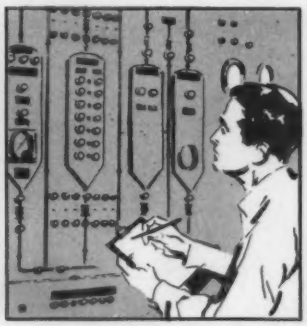
a complete line

OF

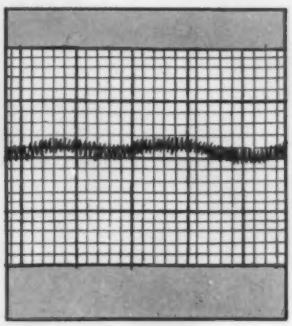
starches, gums AND dextrines

Highly recommended for their greater cleanliness, superior uniformity, stability of viscosity, and constant availability

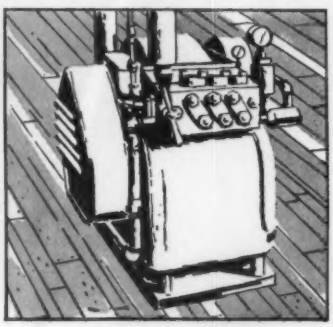
GREATER CLEANLINESS



SUPERIOR UNIFORMITY



STABILITY OF VISCOSITY



IDEAL FOR HOMOGENIZERS

Globe® brand corn starch—This starch is ideal for warp sizing carded or combed yarns where a thick boiling starch is advantageous or for use in homogenizers. Globe Pearl Corn Starch produces strong films, reducing breaks on the slasher and loom.

Eagle® brand corn starch—This thin boiling starch is popular for warp sizing carded and combed yarns. Available in all fluidities which produce viscosities required to maintain correct size concentrations for best weaving.

Hercules brand corn starches—Oxidized starches are used in a wide variety of sizing applications. They produce a smooth but tough, clear film.

Globe® Gum has been popular for many years for warp sizing spun rayon. It has the superior qualities recommended for easy de-sizing.

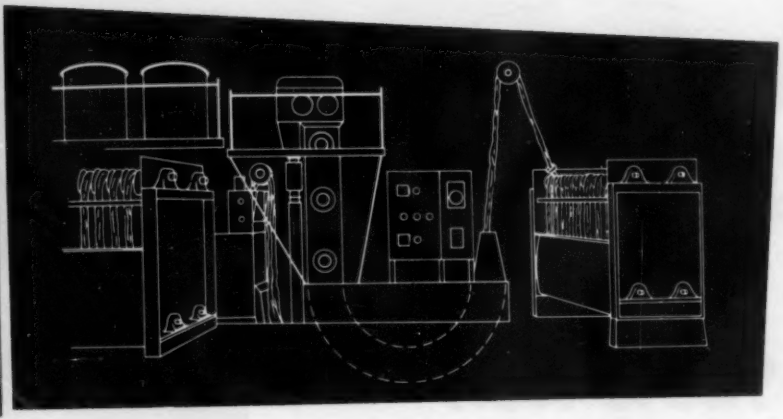
Globe brand extra thick starches make a smooth, lardy paste for backfilling and printing.

Globe Gum and Dextrines fill many finishing requirements. They are versatile and are in increased demand because of their application ease, and full compatibility with other size ingredients.

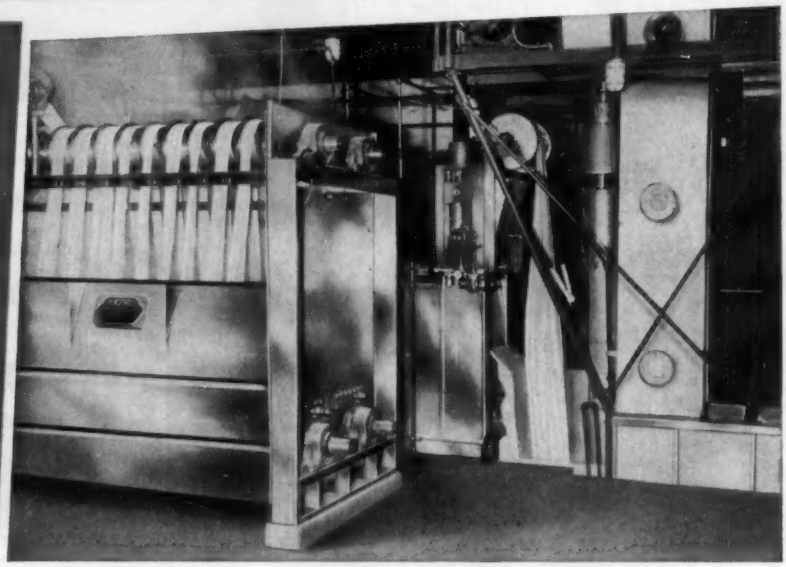
***TAKE ADVANTAGE** of our free technical service. Our lab and field experts will welcome the opportunity to help you with actual production problems. Write us today.

CORN PRODUCTS REFINING COMPANY • 17 BATTERY PLACE, NEW YORK 4, N. Y.

CONTINUOUS "SINGLE STAGE" BLEACHING



AT BATES MANUFACTURING CO.



Drawing shows U-shaped plan of Rodney Hunt Bleaching Rangette in Edwards Division of Bates Manufacturing Co. at Augusta, Me. Greige washer at left, saturator behind, J-box and heater tube in middle with control panel mounted over loop of the J; white washer at right. The range is operating on the new DuPont "single stage" bleaching system.

Edwards Division of Bates Manufacturing Co., Augusta, Maine, uses a Rodney Hunt Bleaching Rangette* for the DuPont "single stage" continuous processing of soft-filled sheeting.

Rodney Hunt engineers worked closely with Bates and DuPont in adapting this equipment to the "single stage" process. Bleaching operations are conducted in a room only 38′ x 63′. The Rangette is installed on a U-plan, 35′ wide and 19′ long. Almost three-quarters of the room remains for working, drying and storage space.

Rodney Hunt Bleaching Rangettes—in both Becco and DuPont types—can be counted on to deliver the efficiency and quality of a large-size bleaching range in operations up to 1500 pounds per hour; the Rangette bleaches 3-ounce goods at 100 yards per minute and 10-ounce goods at 30 yards per minute. Component units include various sizes of J-boxes, saturators and the notably efficient Tensitrol® washers. Write for Catalog 103 for full details and dimensions.

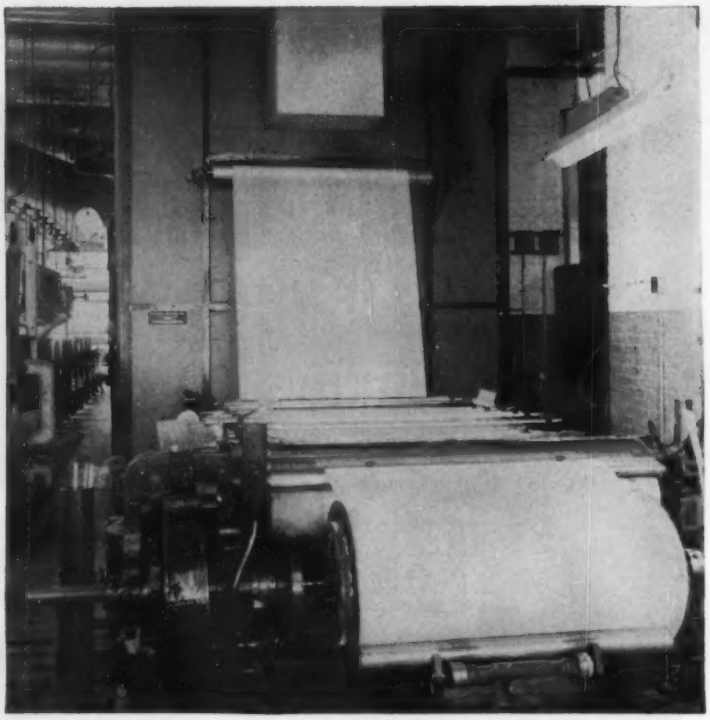
**Rangette is a trademark of Rodney Hunt Machine Co.*

RODNEY HUNT®

RODNEY HUNT MACHINE CO.

66 MILL ST., ORANGE, MASSACHUSETTS, U. S. A.

QUALITY WET FINISHING EQUIPMENT SINCE 1840



Increased Production AT LESS COST

with the

PROCTOR *Par Flow* HOT AIR SLASHER *Dryer*

INCREASED PRODUCTION IS ASSURED WITH

- ► Patented parallel flow nozzle ducts which prevent warp tangling and rolling.
- ► Complete accessibility for easy cleaning.
- ► Availability in various sizes to meet plant requirements in capacity and warp width.

PROCESSING MACHINERY FOR FIBERS AND BLENDS

PROCTOR & SCHWARTZ INC. PHILADELPHIA 20 • PA •

For more information, write direct or use Reader-Service post card.

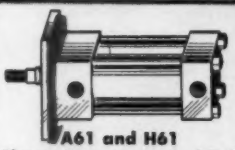
7722 Different Cylinder SELECTIONS—

Miller AIR AND HYDRAULIC CYLINDERS AND BOOSTERS "IN STOCK" for immediate delivery

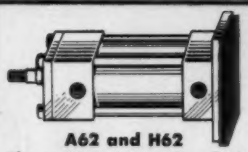
See Miller Bulletins A-105K (Air) and H-104K (Hydraulic) for Complete Dimensions and Engineering Data on these "in-stock" sizes and other Custom Miller Cylinders in bores up to 20" and strokes up to 22 feet.

"IN-STOCK" MODELS

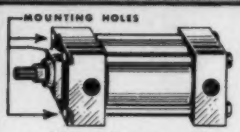
"A" Signifies Miller 200 psi Air Cylinders; "H", 2000 psi Hydraulic Cylinders. Interchangeable Mountings Are Shown In Red On Drawings.



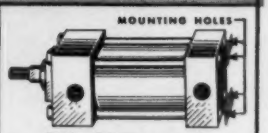
A61 and H61
Flange Mounting on Rod End



A62 and H62
Flange Mounting on Cap End

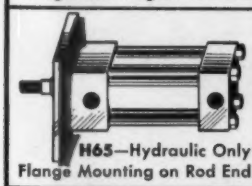


A63—8" Bore only
Flange Mounting on Rod End

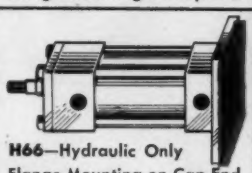


A64—8" Bore only
Flange Mounting on Cap End

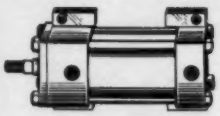
A50 & H50—Tie Rods not extended beyond nuts.
A51 & H51—Tie Rods extended both ends (shown).
A52 & H52—Tie Rods extended. Cap End only.
A53 & H53—Tie Rods Extended. Rod End only.
A54 & H54—Two Tie Rods extended at both ends.



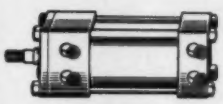
H65—Hydraulic Only
Flange Mounting on Rod End



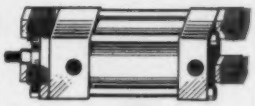
H66—Hydraulic Only
Flange Mounting on Cap End



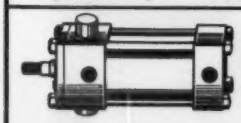
A72 and H72
Side Lug Mounting



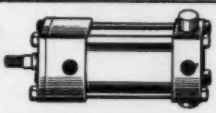
A74 and H74
Side Flush Mounting



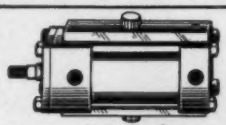
A77 and H77
Side or Foot Mounting



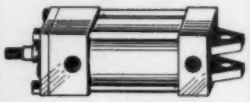
A81 and H81 Trunnion Mounting on Rod End



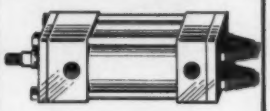
A82 and H82 Trunnion Mounting on Cap End



A83 and H83 Trunnion between Head and Cap (one week delivery)



A84 and H84
Pivot Mounting



A86 and H86
Pivot Mounting

IN STOCK BORES In Inches

"IN-STOCK" STROKES (in Inches)

	Bores	Rod Dia.	Rod Turn Down & Threads		1	2	3	4	5	6	7	8	9	10	11	12	14	16	18	20	22	24	28	32	36
AIR	1½	⅝"	7/16-20	Cushioned																					
				Non-Cush.																					
	2	⅝"	7/16-20	Cushioned																					
				Non-Cush.																					
	2½	⅝"	7/16-20	Cushioned																					
				Non-Cush.																					
	3¼	1"	¾-16	Cushioned																					
				Non-Cush.																					
	4	1"	¾-16	Cushioned																					
				Non-Cush.																					
	5	1"	¾-16	Cushioned																					
				Non-Cush.																					
	6	1⅜"	1-14	Cushioned																					
				Non-Cush.																					
	8	1⅜"	1-14	Cushioned																					
				Non-Cush.																					
HYDRAULIC	1½	⅝"	7/16-20	Cushioned																					
				Non-Cush.																					
	2	1"	¾-16	Cushioned																					
				Non-Cush.																					
	2½	1"	¾-16	Cushioned																					
				Non-Cush.																					
	3¼	1⅜"	1-14	Cushioned																					
				Non-Cush.																					
	4	1¾"	1¼-12	Cushioned																					
				Non-Cush.																					
	5	2"	1½-12	Cushioned																					
				Non-Cush.																					

① "A" and "H" Models 82, 84 and 86 with strokes over 18" require stop tubes.

Column strength requires larger diameter piston rods for the following:

Air Cylinder Models A82, 84, and 86 with strokes inside area (1), when operated at 100 psi and over;

All hydraulic models with strokes inside area (2) and Models H82, 84, and 86 with strokes in area (4), when operated at 2000 psi and over;

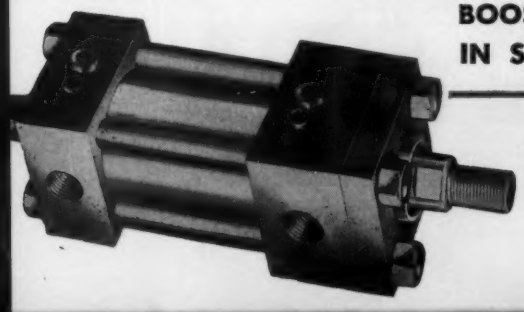
Models H82, 84 and 86 with strokes inside area (3), when operated at 1000 psi and over.

Depending upon Trunnion Pin location, "A" and "H" Models 83 with standard diameter piston rods can have longer strokes than Models 82, 84 and 86.

See Miller File #251 for oversize piston rod and stop tube requirements.

BOOSTERS IN STOCK

Immediate Delivery on the following Miller 25 to 1 Ratio Boosters (80 psi air input produces 2000 psi hydraulic oil output): Model B4, 5" bore, 1" dia. ram, 6" and 12" strokes; Reciprocating Booster Model DA77-RBA8, 5" bore, 1" dia. ram, 6" stroke. Also Booster Tanks, 5" dia., 6" and 10" heights.



Write For Catalog and Stock Price List

MILLER FLUID POWER CO.
(Formerly MILLER MOTOR COMPANY)
2002-06 N. Hawthorne Ave. Melrose Park, Ill.

AIR & HYDRAULIC CYLINDERS • BOOSTERS • ACCUMULATORS
COUNTERBALANCE CYLINDERS

AIM* for the best in production line packaging with new Acme Steel Strapping Machines

Acme Idea Man J. H. Scott Birmingham, Ala. helped Pepperell with this packaging idea

ask your *Acme Idea Man to help solve your problems

Pepperell Manufacturing Company, one of the country's leading textile manufacturers, is enjoying new production efficiencies and economies with this new Acme Steel F3 Automatic Strapper. (Idea No. 438.) *One* operation applies three straps simultaneously with the proper degree of compression, weighs and directs the flow of cartons on a motorized conveyor. Packages are uniform in appearance, straps are placed accurately, and because of uniform compression, they are easier to tier for warehousing. Contents of cartons are safe and secure . . . pilferage and shipping damage are minimized.

This is the type of progressive engineering and forward thinking your Acme Idea Man can offer you. Why not consult with him—let him analyze your present packaging and shipping methods? Call him at the nearest Acme Steel office, or write Acme Steel Products Division, Acme Steel Company, Dept. EE-55, 2840 Archer Avenue, Chicago 8, Illinois.

AIM *For Safe, Lower-Cost Shipping*

ACME STEEL

Now is the time to consider how you can

spruce up your back to school wear with new

*LENRA DYES

for

†ARNEL

TRIACETATE

As Arnel begins to go places, A.A.P. proudly presents its new **LENRA DYES,** a selected group of disperse type colors designed to help you make the most of the outstanding properties of this exciting new fiber. To start off right with Arnel, start with the research-proved colors which help keep Arnel washable and are stable to the heat setting conditions which make Arnel wrinkle-resistant and glaze-resistant.

Intensive tests by the A.A.P. research laboratory have demonstrated the all-around suitability of **LENRA** colors for the dyeing and printing of Arnel. Available in a wide range of brilliant and beautiful shades, the **LENRA** group offers excellent fastness to washing . . . light . . . and sublimation.

Many of the **LENRA** colors are presently being used satisfactorily by Celanese Corp. of America, the makers of Arnel Triacetate fiber.

For full details and working samples, consult our nearest branch. An informative A.A.P. manual on the dyeing of Arnel is available. We invite you to request a copy now.

*Trade Mark Reg. Pending
†Trade Mark

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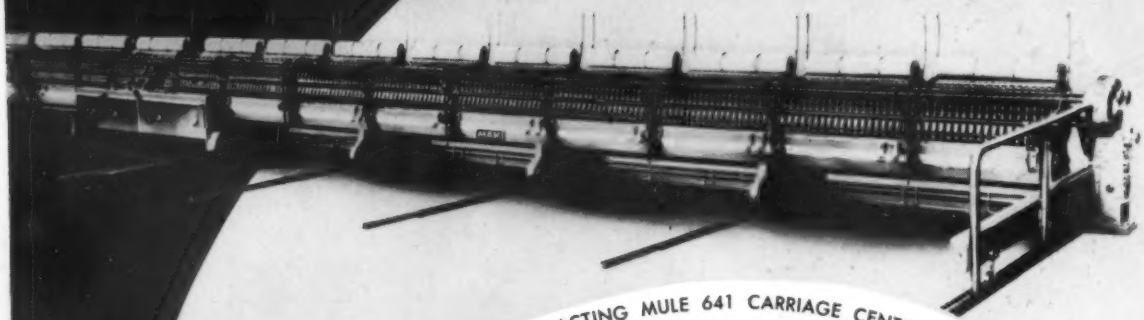
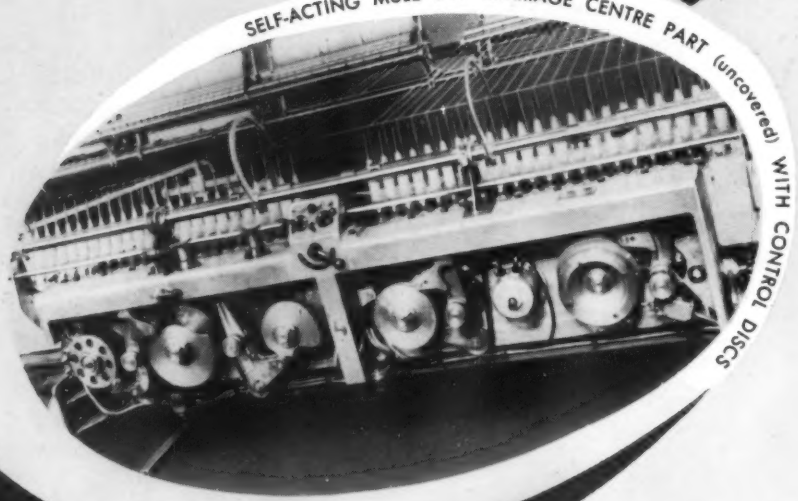
SPINNING MACHINES

•

Carding Sets
Self-Acting Mules
Ring Spinning
Frames

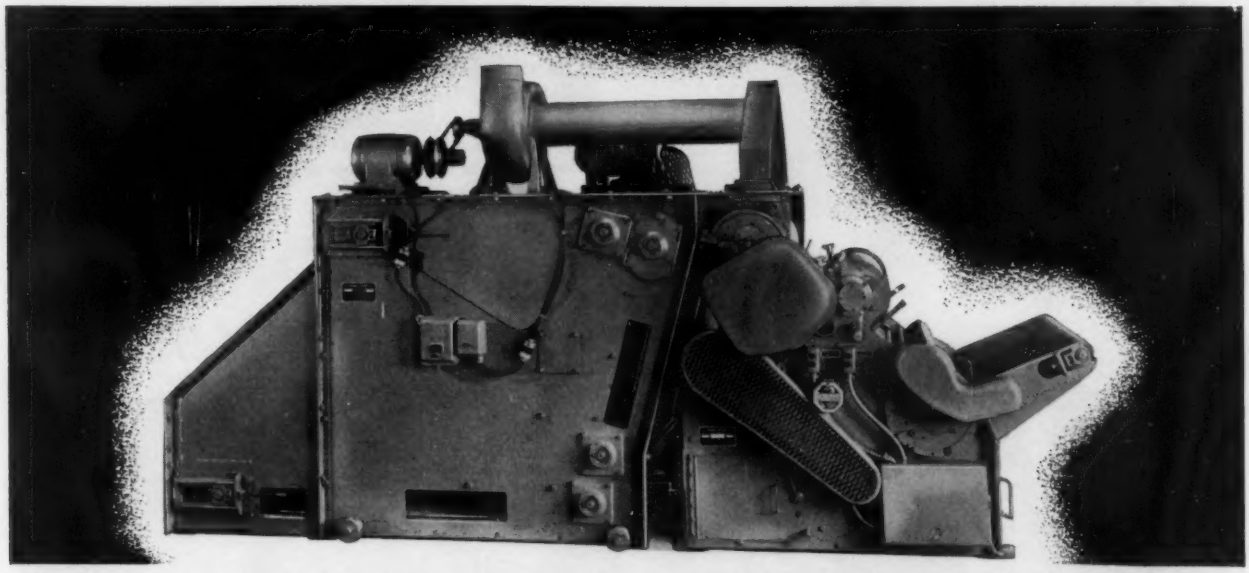




SELF-ACTING MULE 641 CARRIAGE CENTRE PART (uncovered) WITH CONTROL DISCS

MASCHINENBAU KIEL AKTIENGESELLSCHAFT

KIEL-FRIEDRICHSORT, GERMANY



FOUR YEARS OF ACTUAL MILL PERFORMANCE DEVELOPED THE

NEW, IMPROVED MODEL 40B

RANDO-FEEDER | RANDO-WEBBER

NEW — **ENLARGED HOPPER** . . . full 50-cubic foot capacity.

NEW — **FLOOR APRON** gives even pressure of fiber on elevating apron. Speed readily adjustable.

NEW — **STRIPPER APRON** returns excess fibers to rear of hopper. No Feeler Plate or Start-Stop actions.

NEW — **ROTARY CONDENSER SCREEN BOX.**

IMPROVED — **SELECTIVE OUTPUT CONTROL** . . . unaffected by wide range in hopper level.

NEW USES — **BLENDING AND BLENDING LINES.**

COMPLETELY NEW — **DESIGN AND CONSTRUCTION** . . . same principles and functions.

IMPROVED — **PERFORMANCE** . . . product and output efficiency.

IMPROVED — **MAINTENANCE** . . . heavier motors and drives—readily accessible.

NEW — **DOUBLE DRIVE ROTARY CONDENSER** . . . interchangeable with Feeder Condenser . . . minimum spares needed.

NEW — **AIR CHAMBER** design for improved web uniformity. Large accessible clean-outs.

Rando-Feeders and Rando-Webbers have produced thousands of yards of random webs in around-the-clock production. Four years of proven performance. The same basic design today but new features . . . new versatility . . . improved performance. Available in 3 sizes: 40", 60" and 84". Inquiries are invited. Bulletin available.

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CORPORATION

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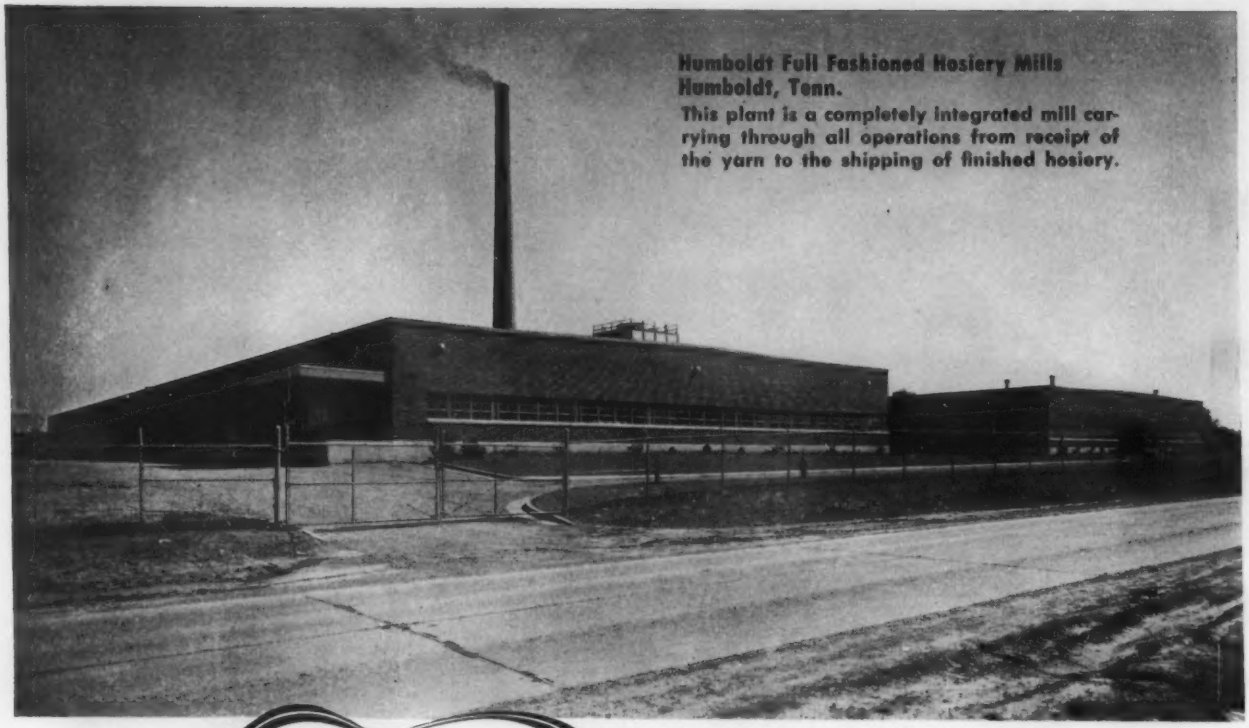

Humboldt Full Fashioned Hosiery Mills
Humboldt, Tenn.
This plant is a completely integrated mill carrying through all operations from receipt of the yarn to the shipping of finished hosiery.

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in
KNIT GOODS

Lockwood Greene has completed over 300 engagements in the Knit Goods field and has had over 4,000 engagements in the entire textile field.

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Union Underwear Co. (Taylor Mfg. Co.), Campbellsville, Ky.
This new plant is the last word in production efficiency from receipt of yarn at rear end of lower floor thru knitting and bleaching to upper floor for cutting, sewing, pressing, boxing and shipping at upper floor platform shown.

Du Pont LATYL* Brilliant Blue BG for DACRON* stays brilliant

A lively bright blue that builds up well in full shades . . . Du Pont "LATYL" Brilliant Blue. This "LATYL" dye is compatible with all members of its family. Developed specifically for "DACRON" polyester fiber and blends of "DACRON," this "LATYL" dye also gives beautiful results in pale shades for acetate. Brilliant Blue BG, like all "LATYL" colors, has very good resistance to fading from light and atmospheric gas fumes . . . excellent wash fastness.

You can apply any of the "LATYL" colors as you would conventional dispersed dyes —by carriers, high-temperature dyeing without carriers, or the Thermosol method. Du Pont's technical staff will be glad to give you more information about superior "LATYL" dyes, or to help you with any dyeing problem. Simply write to E. I. du Pont de Nemours & Co. (Inc.), Dyes and Chemicals Division, Wilmington 98, Delaware.

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Du Pont Dyes

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

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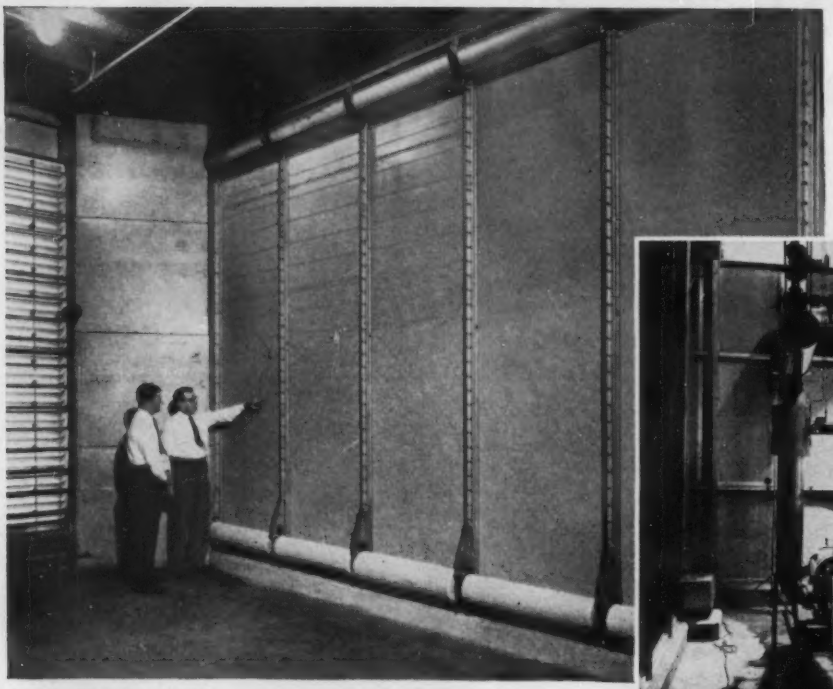
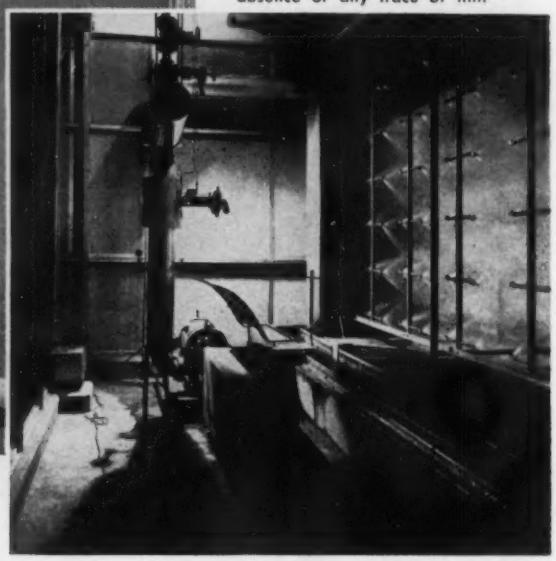
GREENWOOD MILLS
Takes LINT *Out of Circulation*



LINT STOPS HERE. A typical AUTO-AIRMAT installation at Greenwood Mills' new Durst plant. It's one of eleven providing complete lint protection for the plant's air conditioning system installed by Carrier Corporation.



BEHIND THE SCENES. A view of the air washers, protected by AUTO-AIRMAT installation pictured. Note extreme cleanliness of washers and absence of any trace of lint.

Auto-AIRMAT filters supply 1,320,000 cfm of clean air to Durst plant at Greenwood, S.C.

A plant producing a million yards of cotton cloth per week stirs up plenty of lint—lint that could easily "gum up" air conditioning systems and add many costly hours of overtime maintenance. But lint was "voted out" at the planning stage of Greenwood Mills' new Durst plant. Complete lint protection was built-in.

All eleven air conditioning systems (totalling 1,320,000 cfm) installed by Carrier Corporation's Atlanta office were equipped with AAF AUTO-AIRMAT filters. These automatic, self-cleaning filters protect the air washers by cleaning both outside intake air and the re-circulated air to carding, spinning, weaving and cloth rooms.

The AUTO-AIRMAT is the *only* filter that removes lint fibers from the air and cleans itself automatically! The Airmat media, installed in roll form at top of unit, becomes a moving filter curtain that is re-rolled at bottom with its lint load. Curtain movement is entirely automatic, with clean media being introduced only in sufficient quantity to keep resistance at proper level. And the lint is wrapped up in the roll for easy disposal! For complete information, call your local AAF representative or write direct for Bulletin 234.

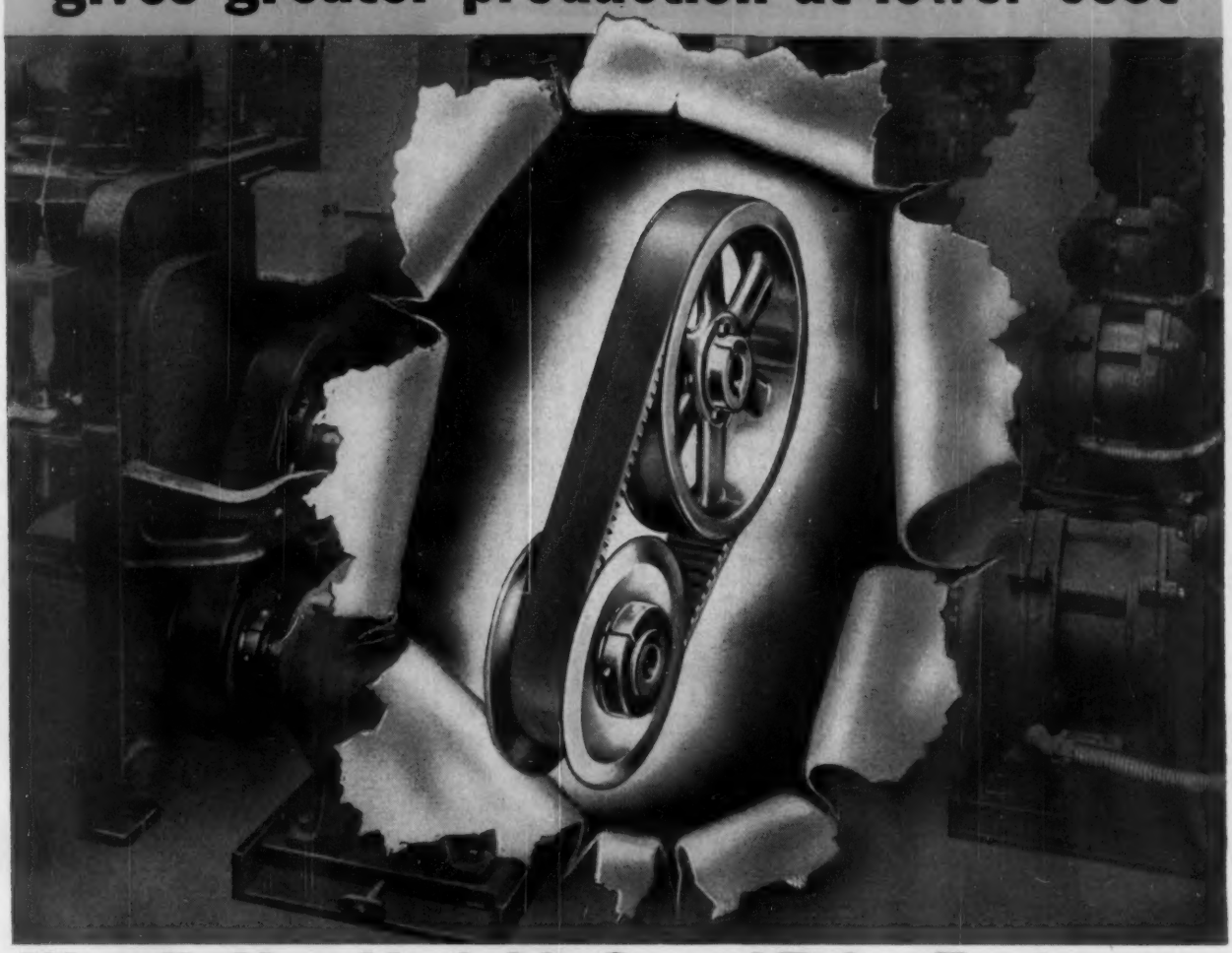
AAF herman nelson

American Air Filter
COMPANY, INC.

American Air Filter of Canada, Ltd., Montreal, P. Q. • 304 Central Avenue, Louisville 8, Kentucky

For more information, write direct or use Reader-Service post card.

gives greater production at lower cost



Wood's New Variable Speed Drive Features:

- **simplified design**
- **larger speed range—3 to 1 ratio**
- **higher HP capacity—1 to 20 HP range**

Wood's Variable Speed Drive—Originated by Wood's, this new construction Variable Speed Drive is being widely accepted and used by many Spin-Weave Mills. By simply turning a single adjusting screw from either side of the variable pitch sheave, both flanges move quickly and easily to the desired setting. Infinite variable speed within range is yours with this low cost drive.

Wood's simplified design provides positive clamping of the two adjustable flanges, eliminating fretting corrosion.

Single wide range belt gives maximum HP efficiency and eliminates the problem of maintaining matched belts and matched grooves for equal power distribution. There's less shaft overhang, too, because the single belt design reduces weight and space required. Routine maintenance time and costs are nil—because no lubrication is necessary on this drive.

For the name of your nearest Wood's Distributor and complete information on the most talked about drive in the Textile Industry write to T. B. Wood's Sons Company.

patent pending

So easy to change speeds. Just loosen both split collars and turn adjusting screw from either side. With the speed chart furnished you can adjust the sheave to the desired speed without trial and error.

Be sure to write for Variable Speed Drive Bulletin #497. Gives complete information on how to design and select variable speed drives from 1 to 20 HP.

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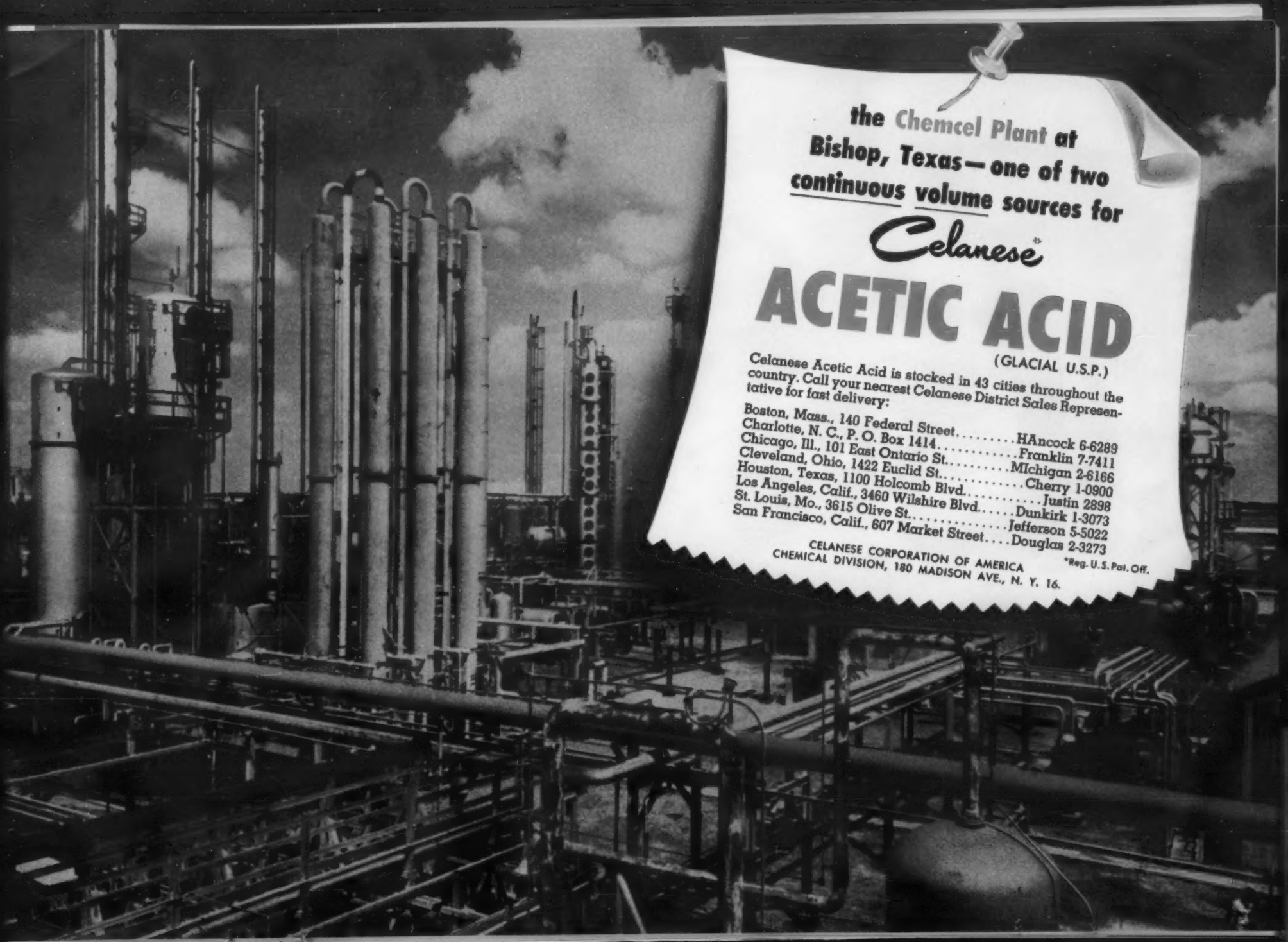
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Houston, Texas, 1100 Holcomb Blvd.....Justin 2898
Los Angeles, Calif., 3460 Wilshire Blvd.....Dunkirk 1-3073
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CHEMICAL DIVISION, 180 MADISON AVE., N. Y. 16.
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SIX INDUSTRIAL PUMPING PROBLEMS Solved by the MOYNO® Pump!

Looking for a pump with a fast-growing reputation for solving tough pumping problems? Then take a look at the simple, versatile Moyno!

Briefly described here are a few of the many successful case histories proving how Moynos handle jobs where other pumps fail. Why is the Moyno a "problem-solving" pump? For one thing, because it differs completely from conventional pumps . . . rotary, centrifugal or piston. Just one rugged moving part—a rotor turning within a stator—does the job.

The list of materials handled by Moyno Pumps gets longer every day. If *you* have a pumping problem, such as handling abrasive slurries, mild acids, caustics, materials that are watery, viscous or even semi-solid—find out if the Moyno can help you! Use the coupon below for prompt, complete information.

1. **Material:** Chromic Acid.
   Problem: Material hard on pumps—being slightly corrosive and abrasive.
   Solution: Moyno pump on duty for the past two years; has required practically no maintenance. Customer very well pleased.

2. **Material:** Quarried Clay.
   Problem: 40 to 60% loss of clay slurry.
   Solution: Moyno pump in use for the past 2 years has reduced above production losses to average of less than 5%.

3. **Material:** Calcium Carbonate Slurry.
   Problem: Continuous failures of centrifugal pumps.
   Solution: Moyno pump still giving perfect service after 1½ years of 24-hour-per-day operation.

4. **Material:** Special Navy Paint Mixture.
   Problem: Low volume of gear-type pump; necessity for pre-heating paint before pumping into tank cars.
   Solution: Moyno cut tank car filling time from 10 hours to 2⅓ hours. No need to pre-heat paint. No maintenance costs since Moyno was installed 2 years ago!

5. **Material:** Caustic Solution—for use in mercerizing machines.
   Problem: Rotary pumps wore quickly, lost capacity, and had too little suction.
   Solution: Moyno pumps cut maintenance and repairs to minimum—had ample suction for drawing caustic through the cloth.

6. **Material:** Anti-Scale Boiler Treatment (alcohols, oils, anti-foam agents, sludge conditioners).
   Problem: Frequent pump breakdowns caused by back pressure of 5 spray nozzles.
   Solution: Moyno pumps cut pumping time from 20 minutes to 3 minutes and also reduced down time. Both helped to increase production 200%!

FEATURES OF THE MOYNO THAT MAY SOLVE YOUR PUMPING PROBLEM

Positive Displacement—Moynos are available to pull up to 29" vacuum while discharging under pressure. Big Moynos deliver up to 250 g.p.m. at pressures to 600 p.s.i.

Versatile—Handles liquids, slurries, pastes, even semi-solids. Rotor and stator available in stainless steel, other alloys, or plastics, to meet wide variety of applications.

Gentle—No churning; won't break up semi-solids; won't aerate liquids. It even pumps potato salad!

Reversible—Pumps with equal efficiency in either direction.

Trouble-Free—Self-priming; won't cavitate or vapor-lock. Just one moving part—no valves to stick, no pistons to gum up. Built for tough service. Easy to maintain.

ROBBINS & MYERS, INC.

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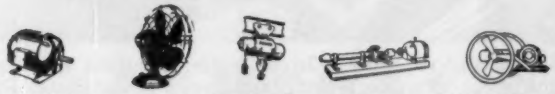

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Gentlemen: Please mail free copy of Bulletin 30-B containing details on Moyno Pumps.

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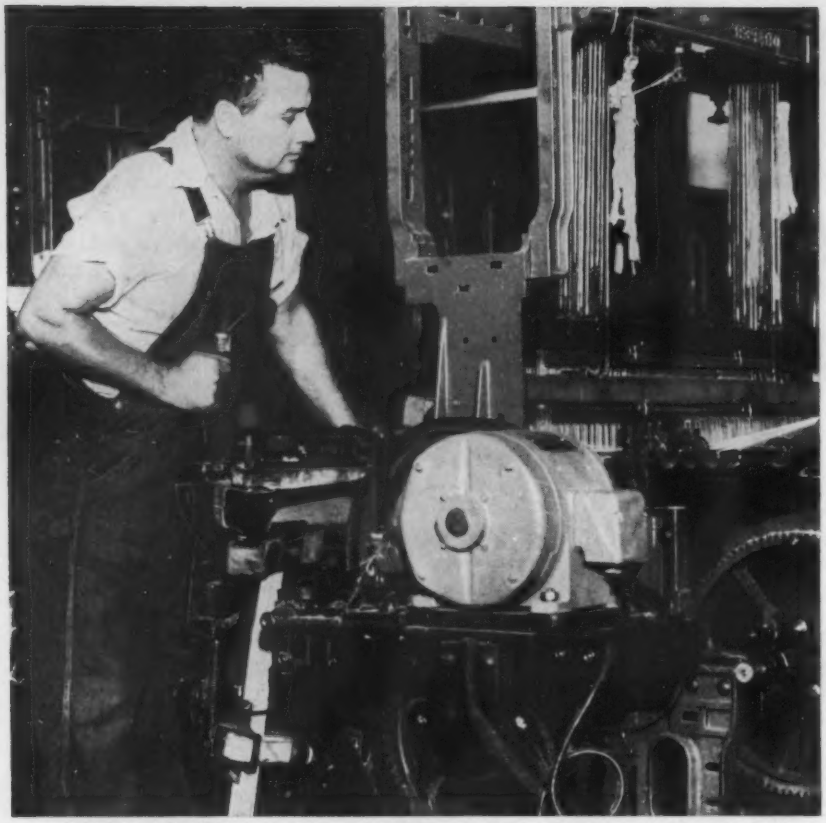
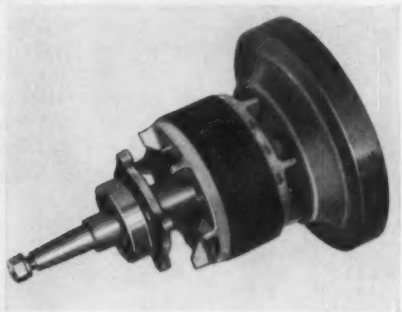


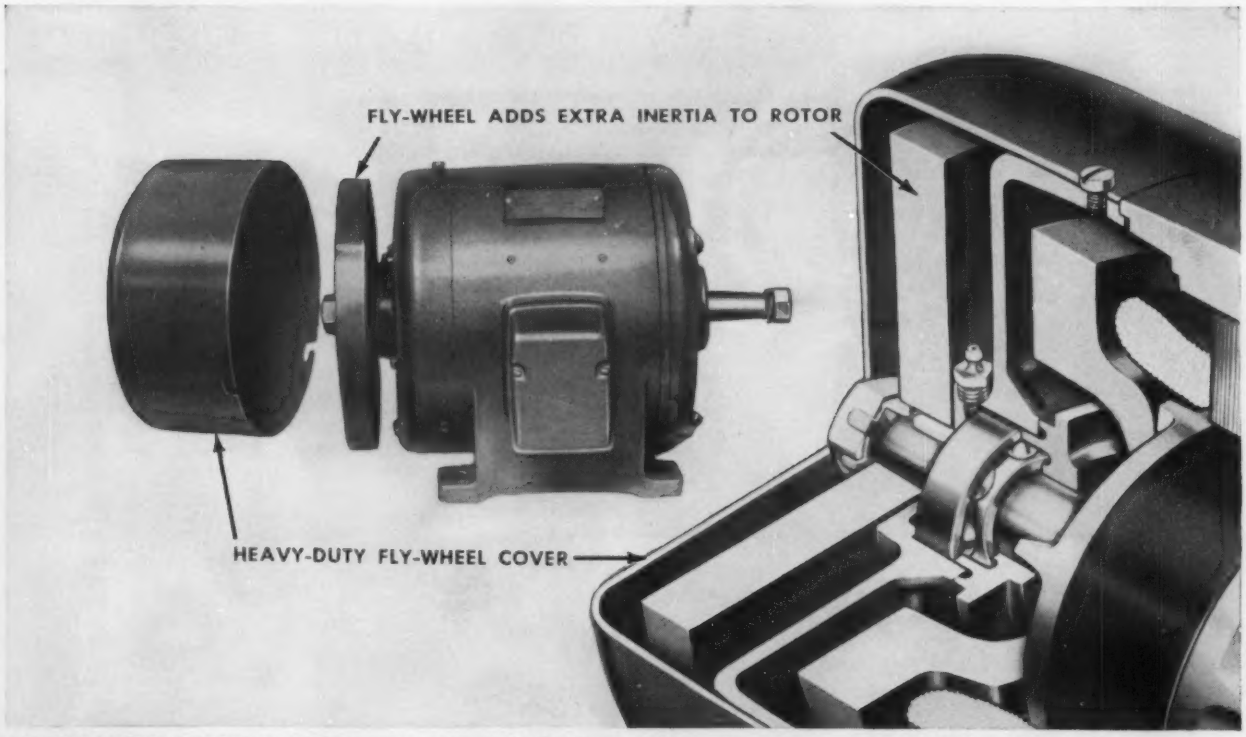
SMOOTHER OPERATION on this loom in a southern cotton mill is provided by a 1-hp G-E Tri-Clad '55' loom motor. This new motor has protection features—physically and electrically—not usually found in ordinary motors.

NEW STATOR INSULATION, entirely coated with G.E.'s new Dri-Film silicone water repellent, resists moisture.

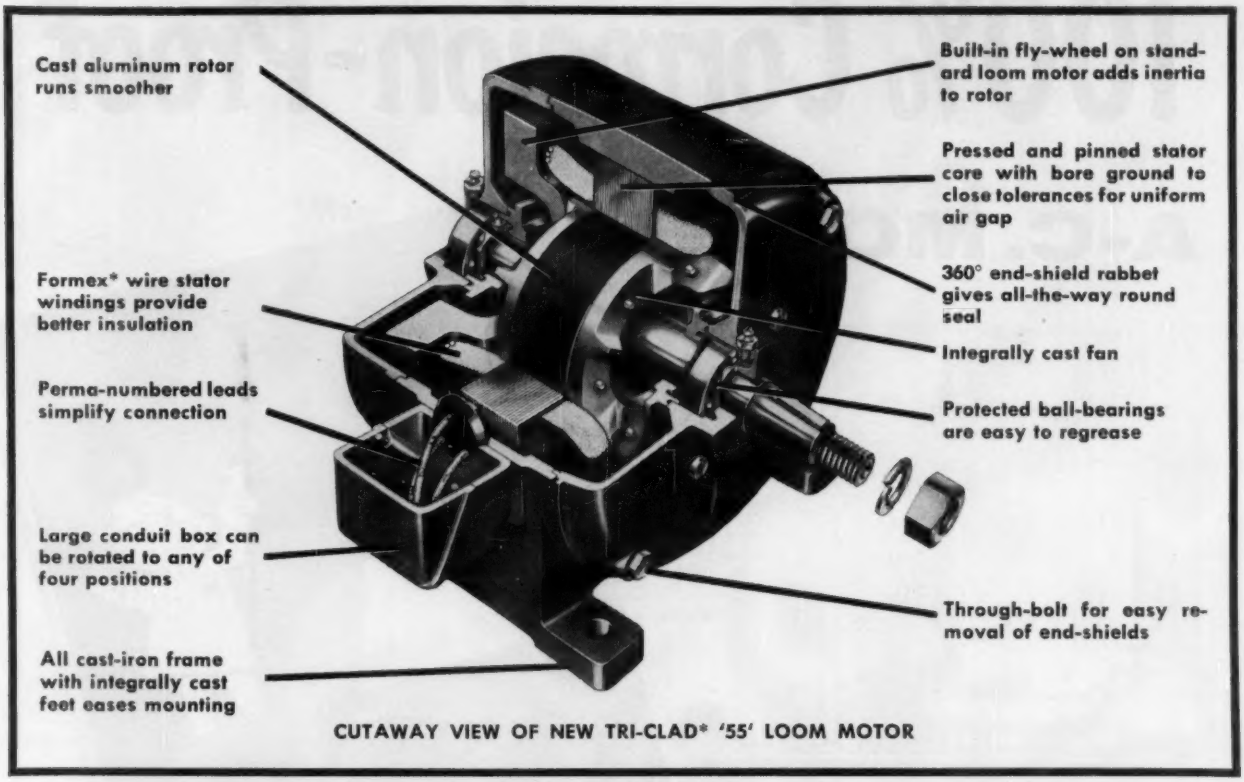


DYNAMICALLY BALANCED rotor and fly-wheel—rotor has integrally cast fans, is shrunk onto shaft for tighter fit.

NEW G-E loom



MORE CONSTANT PICKING SPEED—on those few applications requiring extra high inertia—the standard G-E loom motor can be fitted with an external fly-wheel. Where loom cycles vary widely, this enables the new motor to successfully do a job usually requiring a larger motor. Constant speed gives you more effective picking and lower power costs. Photo shows motor with cover off, and cutaway view demonstrates how the extra fly-wheel becomes an integral part of the motor.


Cast aluminum rotor runs smoother
Built-in fly-wheel on standard loom motor adds inertia to rotor
Pressed and pinned stator core with bore ground to close tolerances for uniform air gap
Formex* wire stator windings provide better insulation
360° end-shield rabbet gives all-the-way round seal
Integrally cast fan
Perma-numbered leads simplify connection
Protected ball-bearings are easy to regrease
Large conduit box can be rotated to any of four positions
Through-bolt for easy removal of end-shields
All cast-iron frame with integrally cast feet eases mounting

CUTAWAY VIEW OF NEW TRI-CLAD* '55' LOOM MOTOR

motor gives constant picking, cuts power costs

APPROVED BY FACTORY MUTUAL, new switch keeps lint out, keeps motor running full time.

New extra-protected motor in both standard and fly-wheel types, plus new lint-tight switch, combine to help withstand severe loom service with minimum maintenance

Top fabric output is possible when you power your looms with General Electric's new Tri-Clad '55' loom motors. The standard motor has an internal fly-wheel, and the fly-wheel motor has both internal and external fly-wheel for applications requiring extra-high inertia.

Extra motor protection is built in by using new insulating materials and cast-iron end-shields and frames. Stator laminations are welded in eight places for a more rigid steel core, and G.E.'s Dri-Film* silicone water repellent virtually eliminates core insulation failure due to high humidity.

Large Grease Reservoir enables motor to run for long periods without regreasing. When necessary, regreasing is made easy by simply removing drain plug and giving bearing a few quick shots with grease gun.

New lint-tight loom switch has labyrinth seal arrangement around recessed toggle opening. Die-cast aluminum handle slides against moisture-, fungus-, and insect-proof cotton felt gasket.

For more information, contact your local G-E Apparatus Sales office, or authorized General Electric distributor. Write for Bulletin GEA-5858A, General Electric Co., Section 654-35, Schenectady 5, New York.

*Registered trade-mark of the General Electric Company.

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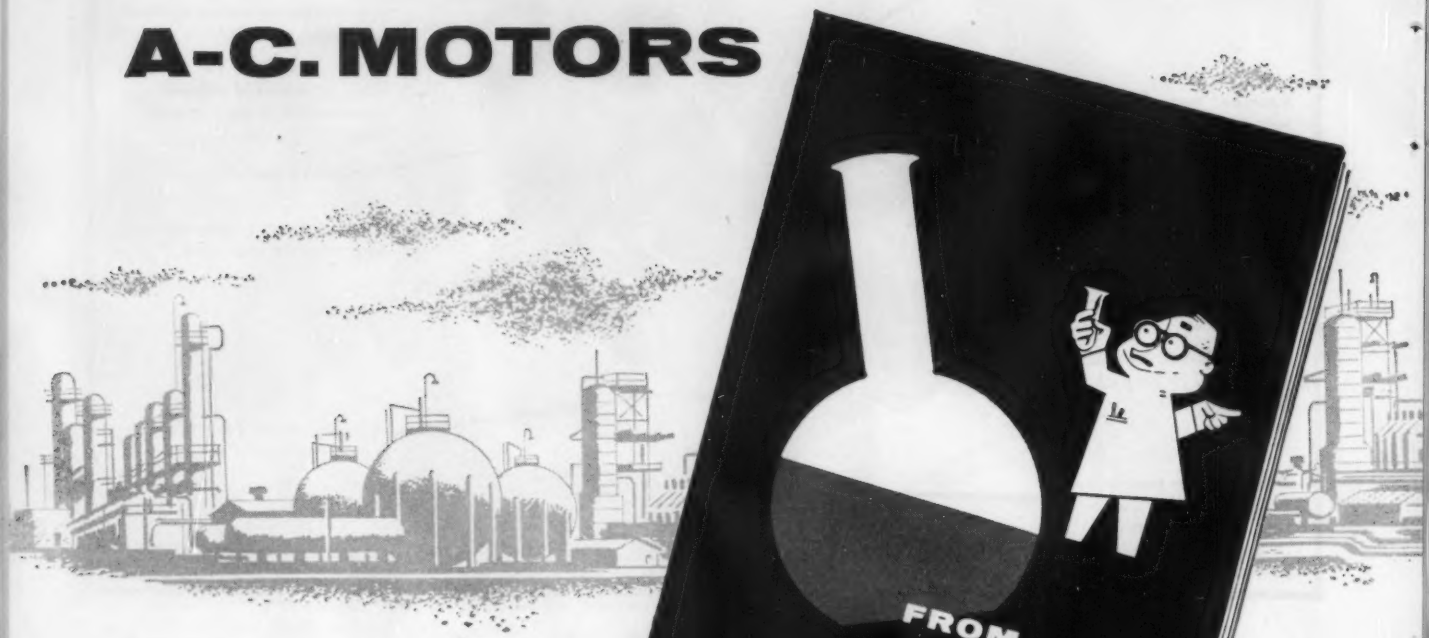
A-C. MOTORS



Here is a corrosion-proof chemical motor with enough flexibility to fit *your* requirements. It's *Totally* Protected.

Interesting features about this motor are brought out in detail in a new booklet entitled "From Naphtha to Grain Dust". It's worthwhile reading to find out *why* this motor has won wide-spread recognition in the chemical field.

Get your copy today by mail, or through your local Reliance district sales office or distributor.

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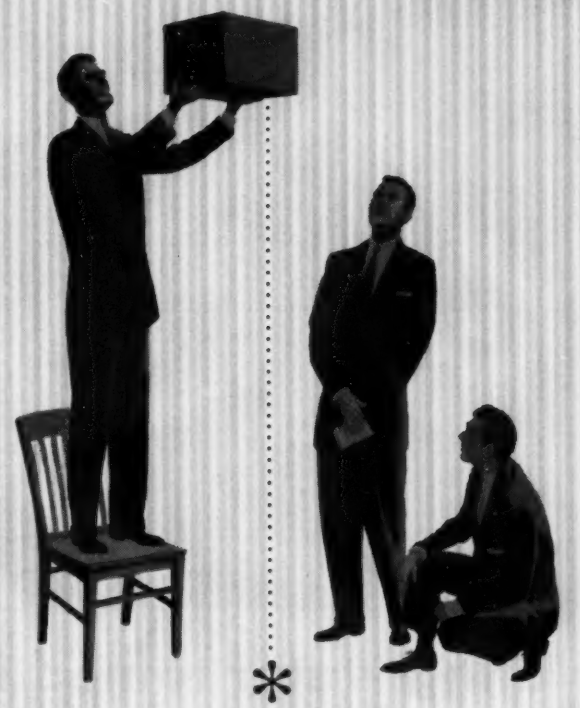
RELIANCE Precision-Built MOTORS

Builders of the Tools of Automation

RELIANCE V★S DRIVE

"Now, watch when I drop it..."



This is a customer's version
of our own "drop test."
Gives you an idea how your box
stands up in transit.

And if it doesn't, it's time to
talk to us. We make boxes that
don't do anything when you drop them...
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Ask us. We'll show you.

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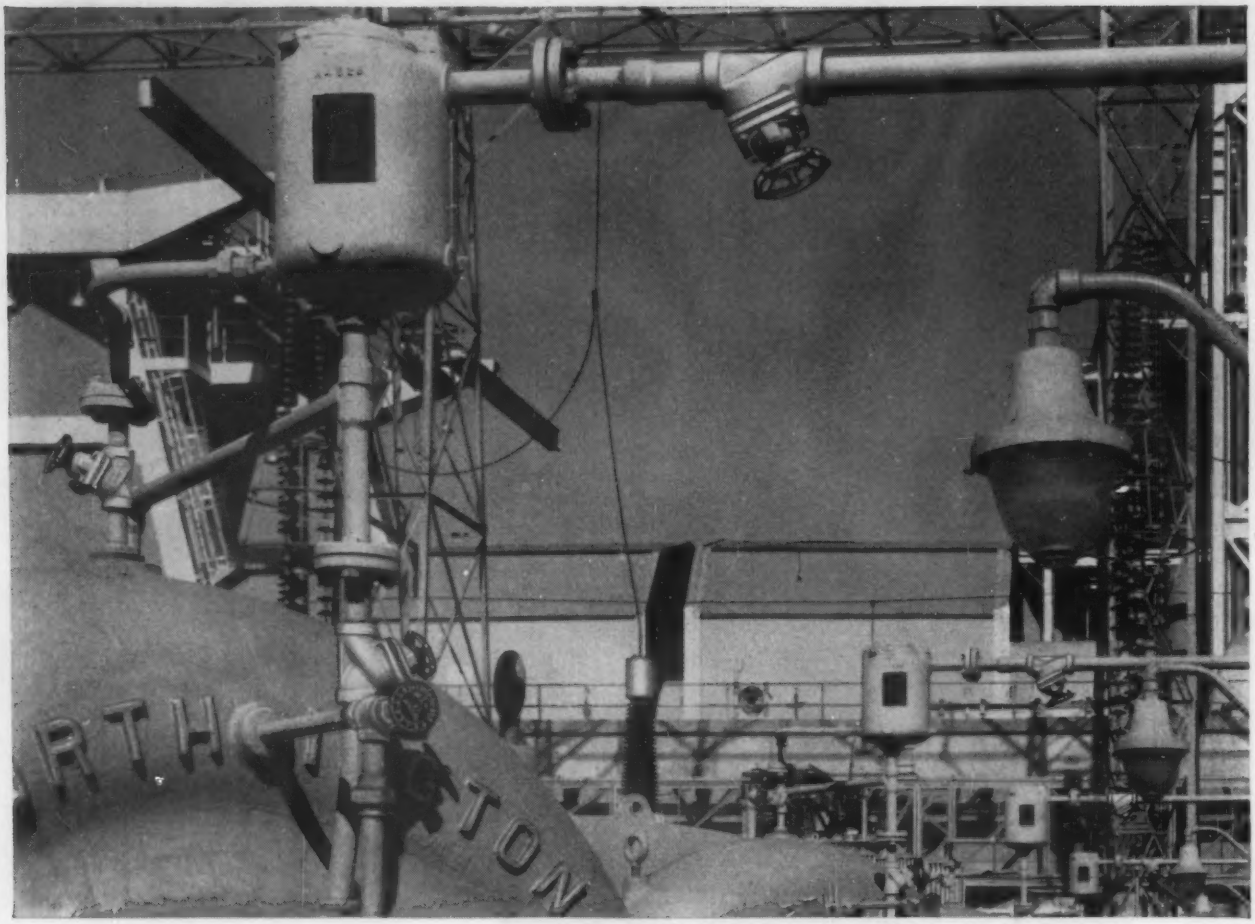

Corrosive circulating water tamed here by these CRANE VALVES

THE CASE HISTORY—Almost 2 years' operation without any maintenance of valves on circulating water lines to condensers, and on priming and instrumentation systems—with no trouble in sight. That's the experience of Southern California Edison Company's 280,000 k.w. steam station at Etiwanda with Crane Packless Diaphragm Valves.

The plant's engineers knew that sediment in recirculated water would quickly cut out the seats in ordinary valves and its corrosive elements would attack working parts to make valve operation difficult.

Not so with Crane Packless Diaphragm Valves. Their sealed bonnet keeps working parts out of contact with line fluid—free of corrosive effects. Separate disc construction with pliable insert resists erosion—seats tightly even on foreign particles. Large or small, these valves operate easily with fewer turns to the cycle. Typical Crane quality throughout—they're made better to do the job better—a bigger value for the thrifty buyer.

CRANE No. 1610 PACKLESS DIAPHRAGM VALVES

No packing to maintain. Neoprene diaphragm has longer life because it seals the bonnet only—is not subject to the cutting and crushing encountered when also required to do the seating. Separate disc gives control of fluid even should diaphragm fail. Wide selection of materials and sizes. Write for folder AD-1942 or see your Crane Representative.

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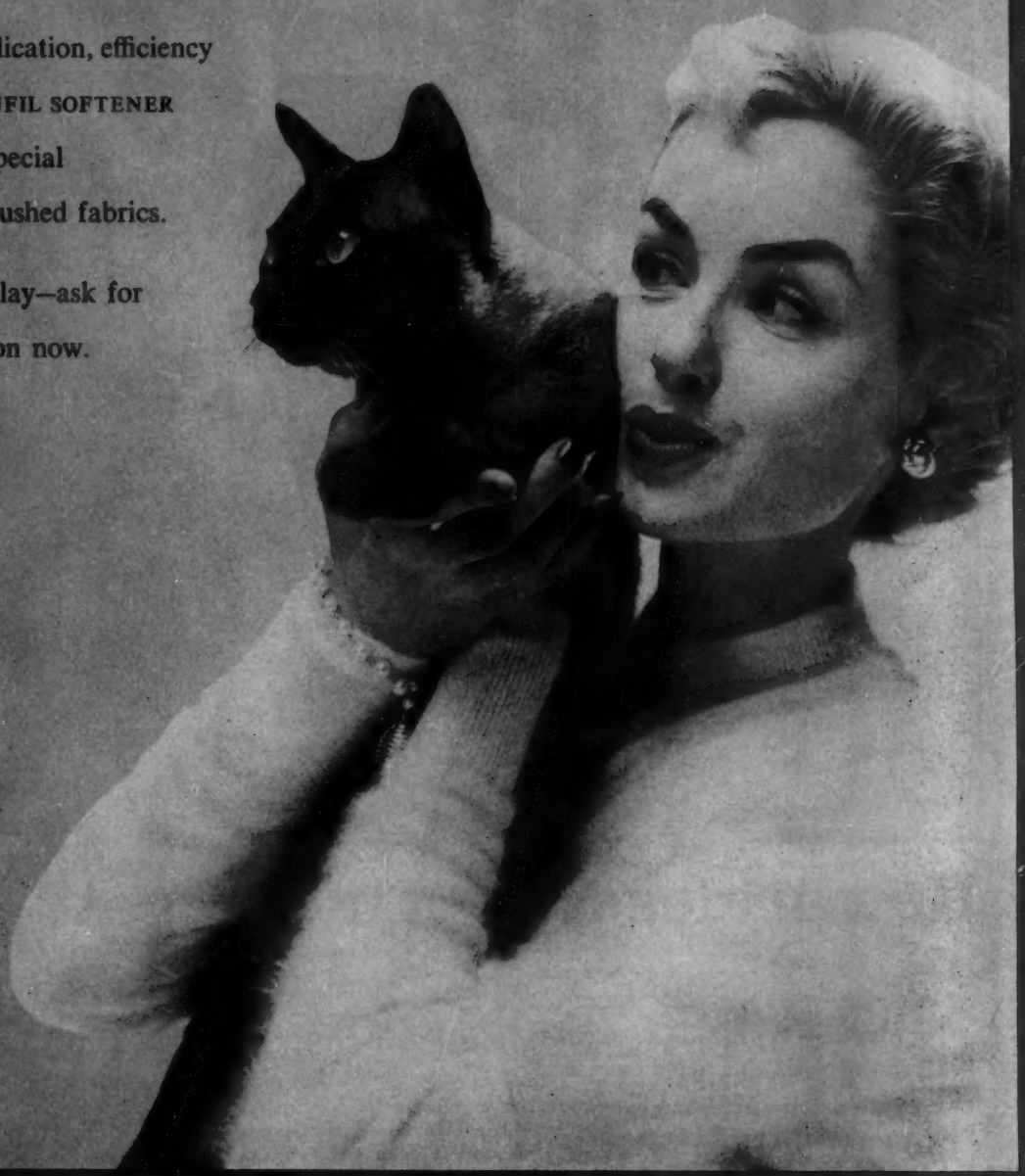

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The result? They're winding up with fewer "seconds", increased mill efficiency and greater profits.

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SUPERVISORS Have Too Much Work

The other day we were talking with a textile man who has reached that enviable state where he can say to heck with the whole thing and retire to Florida. Inevitably, the conversation became reminiscent, and together we took a look at what has taken place in the average mill in the last twenty to thirty years.

The overwhelming change, the change from which nearly all other changes have flown, is the fact that the textile industry has become a relatively high-wage industry. Paying a man 20¢ an hour to push a box is one thing, and paying him $1 an hour to push it is quite another. Improved processes, mechanization, better working conditions, etc. all spring from that increased wage rate.

Supervisors Are People Managers

The greatest change that has taken place in the day-to-day jobs of mill superintendents and overseers is that they are now primarily managers of people at work. In most cases, they are not the skilled technical and mechanical men they were in the last generation or two; and they don't have the attitude of production and low costs at any price of the human element.

This contrast is seen strikingly by a comparison of mills in other countries, even European countries, with U. S. mills. It is also seen right here in the U. S. by a comparison of small mills with medium-size or large mills. In other countries and in very small U. S. mills, superintendents (and overseers if there are any) are still technical and usually mechanical men, very often really machine fixers.

However, the great bulk of the U. S. industry is represented by mills large enough to require a considerable organization of production supervisors. These are the men who have become managers of people at work. And it is these men who generally are so loaded with work and responsibility that they are not able to do anything like the quality of work they could do.

People vs. Machines

Take that matter of responsibility for people at work vs. machine production, for example. Everyone knows that constant checking of the product and constant counseling with other supervisors, fixers, or machine operators will usually improve quality and production and lower waste and over-all costs. Yet, the amount of time that can be devoted to these things is severely limited by other obligations.

Everyone knows, too, that managing people at work takes every minute of time the supervisor can spare; and however much that is, it's not nearly enough. Morale, capability, and even production and costs could be greatly improved if supervisors had more time to apply to the management of people and to increasing their skill in that part of their jobs.

Red Tape Is a Drawback

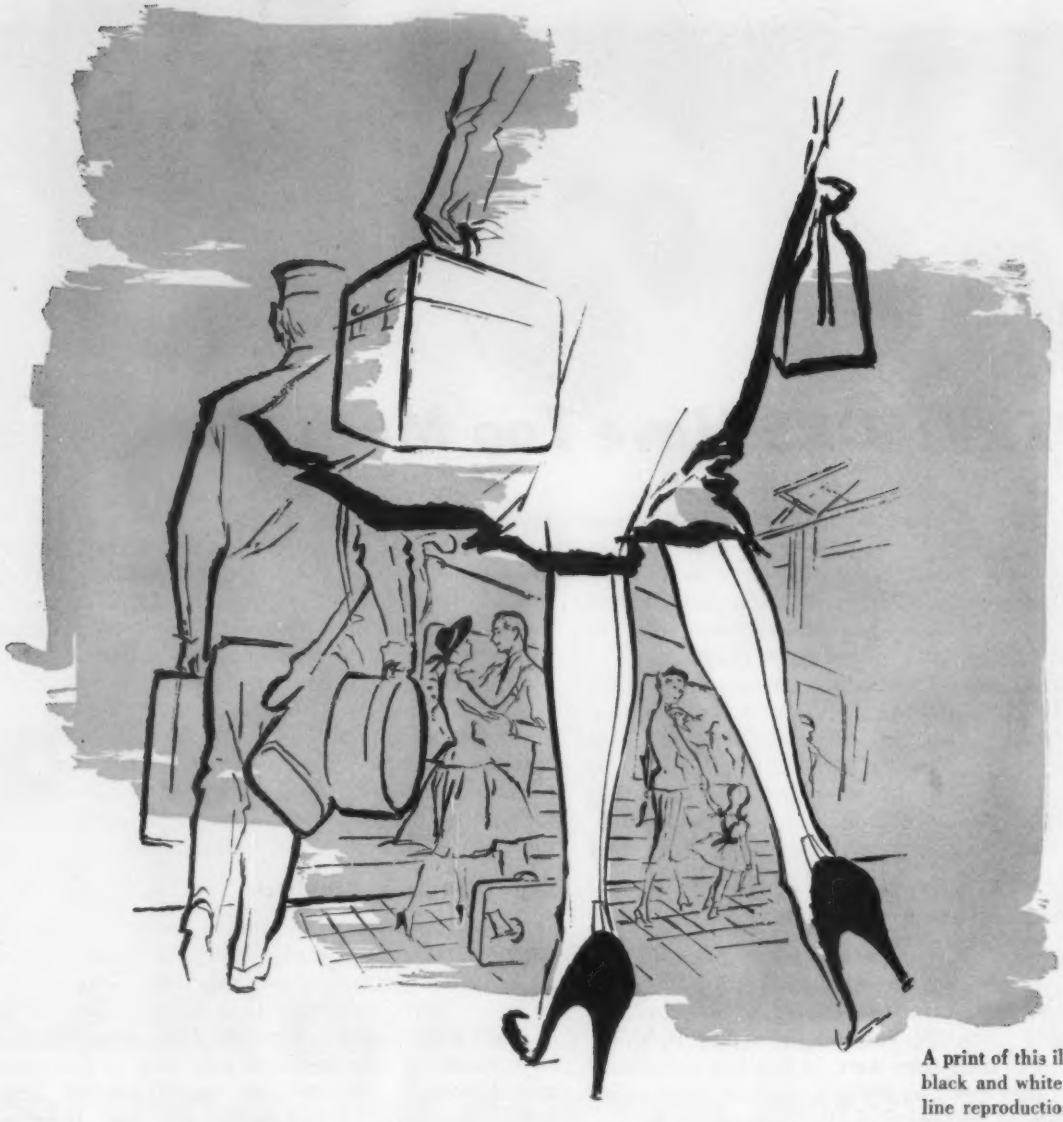
As mill operation has grown more scientific and complex to combat rising labor costs and as government regulations have increased, supervisors have had to spend more and more time doing things directed at neither machinery nor people. Of course, most mills have come up with so-called aids such as cost-control and timestudy departments, quality-control departments, personnel departments, etc.; but these aids themselves have a way of demanding supervisor time, often more time than they save.

It is one of the ironies of modern business organization that the organization itself eats up an astonishing amount of manhours. Somewhere we've heard of an animal or a fish or something that eats part of its own body if it gets hungry enough. That's what modern business organizations do as a regular fare.

So what's the answer?

Obviously, it lies either in cutting away some of the time-consuming nonessentials or in increasing supervisory manpower to permit further delegation of responsibility and work. Once that is done, someone should ride herd on those people (there's at least one in every organization) who have such a genius for creating work for someone else.

A. M. Thomas



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A FACT: In 1953 the steady climb of 51-gauge equipment stopped, and then declined, as the Hosiery Industry swung to finer gauges and greater precision in full-fashioned knitting machinery. (Textile Machine Works, 1953 Statistical Survey.)

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Textile World
May, 1955
Vol. 105, No. 5

Responsibilities of an OVERSEER

By MARCUS C. GROSS

Probably no other man in the average mill organization has so much potential for good or bad leadership as the departmental overseer. No one else in the mill has equal opportunities to make policies and practices work or not work, since he has direct control over a large portion of production and workers.

It is therefore vital that overseers know what is expected of them—what their duties and responsibilities are, and what limitations there are on the authority they are expected to wield.

The manual presented here is written specifically for the spinning-room overseers in one mill, but the manual can also be used as a guide to the preparation of manuals for other departments.

You may or may not agree with some of the things in this manual, but it serves its purpose: overseers in this mill know what is expected of them.—

EDITOR

What an overseer should do about—

You, as the overseer of spinning, have over-all responsibility for every function within the department. Your ability, training, and loyalty to the company have been carefully screened and are a matter of record—a record of endorsement from your superiors.

Your major responsibilities are classified here to assist you as a guide to present policy and for future reference. Future changes should be incorporated into this manual; keep it up to date. All major changes in policy come from the superintendent.

—Delegation of Authority

The overseer is authorized to delegate as many duties as he desires to the second hands, but with preknowledge of their fullest abilities. Over-all responsibility by the overseer does not change.

—Production Control

At the present time, the spinning department is the pivot between the card, warp-preparation, and weave rooms. Your department plans the production requirements in pounds of yarn for filling and warp. Pounds of yarn are converted to roving pounds required, including hank, staple, combed and carded requirements; and totals are sent to the card room. A percentage for waste is added.

A central production-planning department is being planned; and this function, including quality control, will be under the direct supervision of the superintendent.

Close cooperation must be maintained between all line officials. Bottlenecks must be eliminated before they cause loom stoppage. Jockeying machines and shifting personnel may be necessary on occasion, and a constant check on daily yarn reports will show your immediate needs. The spinning department pivots on you and your leadership.

The loom schedule is sent to you directly from the superintendent's office. It is a quarterly schedule unless otherwise noted; and it lists the styles, weekly number of assigned looms, and shifts. Transcribe this information to the spinning-department production-layout form.

On the construction layout (style sheet), sent to you by the designer, the efficiency of the looms in yards per week is listed on the front. On the back is listed pounds per 100 yds., both warp and filling. Pounds per loom shift is then found for every style; and sum totals for every style, warp and filling, are transcribed to the spinning layout form.

The spinning-production layout form contains the following information: styles; loom shifts; pounds of warp; pounds of filling (5% added for waste); yarn numbers, warp and filling; hank roving; staple; carded and combed, pounds per frame, warp and filling; total frames; and total spinners required. One completed copy is sent to the superintendent's office along with the sum totals of roving requirements, and one copy is sent to the card room.

Doff layouts are prepared by the second hands. They have the doff tasks, doff intervals, and total spindle loads. This information is also on file in your office.

From the second hand's reports, review with them the frames running daily. These reports are early shift reports and are necessary for production control. At least 20% (a day's supply) of filling must be maintained ahead of the looms for proper conditioning. A two-week supply of warp in loom beams, section beams, cheeses or spools, or bobbins must be maintained ahead of warp preparation. This supply is subject to fluctuations, but daily contact with the overseers of weaving and warp preparation will keep fluctuations under control. Daily conferences with the superintendent on production schedules are held in his office.

—Quality

The quality of our product is well known throughout the trade, and a never-ceasing effort must be made to maintain the highest quality possible. A summary of causes of uneven yarns, as applied to our mill, is on file; it should be referred to constantly by all supervisors.

Every employee should be contacted and quality defects, as they pertain to each task, pointed out. Make every effort to eliminate defects. Yarn defects cause broken picks, mispicks, and warp breaks in weaving—to mention a few causes of bad cloth.

Make every effort to eliminate slubs. Keep a daily record of bad roving, and send copies to the superintendent and overseer of the card room. To eliminate bad roving as far as possible, there must be close cooperation between the card room and spinning department.

All bunches are to be periodically checked by the second hand. Instruct all doffers to toss out split or otherwise bad bobbins. Bunches should contain approximately 10 yds. to take care of varying loom widths. Doffers are not to put in a hand bunch; they are to use pieces returned to the bobbin stripper for stripping. All filling frames are equipped with automatic bunchers.

In line with our quality program, all rooms must be clean and good housekeeping must prevail. A daily inspection must be made by the overseer and second hands. A monthly inspection must be made of all spinners' roving and yarn piecings. Take samples to your office, and discuss them with the second hands. Carry out corrections or reinstructions at once.

Cloth samples showing defects caused by bad spinning should be shown periodically to all spinners and other employees.

A weekly report on yarn sizes and break factors is sent to the spinning department from the quality-control department. Yarn is sized daily. Sharp deviations from standard are supposed to be brought to your attention immediately. The break factor used in our mill is the product of yarn number times breaking strength, which is now practically standard in the industry. This break factor supersedes our older method of averaging the break in pounds of tensile strength. Check these factors closely with your second hands.

Cloth is inspected each afternoon in the cloth room. The overseer of the cloth room will have pieces set aside, and these pieces will be run over a perch for inspection and observation. On occasion, second hands should be brought to such inspections. Quality must always be our slogan.

—Cost Control

The spinning-department budget is set up by the cost department. A report is submitted monthly. Fixed charges, such as "expense burden," "maintenance," and "power and light," are prorated; and if you have any questions concerning fixed charges or other budget items, take them up with cost-department officials for clarification.

However, there are two items in the budget that demand constant attention: "salaries and wages" and "supplies." Salaries and direct-labor wages (direct labor means all piece-work tasks) will show the least fluctuation. Indirect labor (all tasks on hourly wage rates) should be more or less flexible; but additional employees above the normal, or overloading, is not permitted unless changes make additional help necessary. Requests for additional help must first be taken up by the overseer with the superintendent.

In this connection, a precedent was established in the department when all conventional spinning was converted to long-draft aprons, which made additional cleaners and scourers necessary. All tasks will come under periodical timestudy; and with new methods, workloads, and time- and labor-saving machinery, readjustments in personnel must be made in line with cost cutting.

Make every effort to replace employees in the department whose jobs have been abolished. If they cannot be retained, the personnel department has set up a policy of assisting such employees to get jobs in other departments in the plant if available. Give this information to every employee who is separated.

Overtime costs must be carefully checked and controlled. Overtime should not occur except in emergencies. Overtime work beyond the standard 40-hr. week (after 8 hrs. in any standard working day under the Walsh-Healy Act) increases the cost to your department and the company by 50%. Other overtime premiums are agreed to in the union contract. You must make yourself familiar with these provisions. Further guidance can be obtained at the personnel department or at the conferences held by top management from time to time.

All payrolls must be signed by the overseer at the payroll office. Payrolls go direct from the second hands to the payroll office at the end of the work week. These payrolls must be carefully checked.

The overseer is not allowed to grant wage increases, with these three exceptions: (1) Step increases for learners as they progress toward a full task. Learners' rates are on file. (2) Allowable minimums where a spinner or doffer, for example, hasn't a full task. (3) The top rate shall be paid employees who perform tasks by request, other than their regular work. Thus, if a cleaner who knows spinning is requested to take over a set temporarily, he shall be paid the spinner's rate.

All promotions and other matters concerning rates, increases, and decreases must be taken up with the superintendent first.

—Supplies

All requisitions for supplies must be signed by the overseer. In the absence of the overseer, the second hand is authorized to order general supplies such as the daily requirements of cleaning supplies, toilet materials, lights, etc., from the company stock room.

All requisitions for outside purchases of supplies and parts stock must contain the overseer's or superintendent's signature or both. All requisitions exceeding $100 must be sent to the superintendent for approval and signature, plus the signature of the overseer, before being sent to the purchasing agent's office.

The spinning department's parts-stock-control system is controlled by the second hands. Index and perpetual inventory control records are kept on file in your office. A classification list of parts stock and general supplies is also kept in your office. However, all supplies not under perpetual-inventory control must remain under the control of the second hands and must be disbursed or delegated by them.

Reorders should always be brought to your attention by the second hands. Check the frequency of these orders carefully to avoid duplication, waste, and poor control. Records of supplies used, destroyed, or otherwise disposed of, such as bad bobbins and skewers, are vitally important when replacements are ordered and when the budget is set up for the fiscal year.

Our rule-of-thumb policy is to keep all supply records for at least a year; then destroy the least important, according to your judgment.

Great savings can be made in parts stock and general supplies. Keep them under constant and efficient control and in maximum use. Keep maintenance to a high standard; and inspire all employees to be cost-conscious of the materials they handle, control, or operate.

—Union and Human Relations

The company operates under a negotiated open-shop contract. Open shop means that it is optional with the employee to join the union or not. Nonunion employees receive the same benefits as union employees, and no discrimination is allowed because of affiliation or nonaffiliation with a union. The present union is the sole bargaining agency for all eligible employees. (See contract.)

In essence, a nonunion employee can solicit the services of the union's officers in grievance cases.

The overseer must attend all grievance hearings above the level of the second hand. Grievances must be handled at once, but the majority of them are usually settled at the second-hand level. However, these grievances must be reported to the overseer. Records of all grievances must be kept if and when they reach the overseer level.

The sequence of the grievance procedure cannot be adjusted. Grievances must follow this stepladder: (1) employee and second hand; (2) employee, steward and/or grievance committee and second hand; (3) union officials of the department, second hand, and overseer; (4) union officials of the department, overseer, and superintendent; (5) union officials of the department, business agent, overseer, superintendent, and personnel director; (6) state board of arbitration and conciliation.

By agreement, grievances can be taken directly from

the overseer level to the personnel director; but in all such cases, the superintendent must be notified.

Other agreements, not in the contract but agreed to by all parties concerned, are binding on the department; these agreements must be in writing, signed, and approved.

All contract negotiations are conducted by the personnel department; and the personnel department may arrange conferences for all supervisors while the contract is in negotiation. Attendance is mandatory.

Under the open-shop contract, you can direct your employees with full equality—promotions, layoffs, and seniority. Strict impartiality must prevail. In all union matters that need further clarification, contact the superintendent or personnel department at once.

Human relations in your department must be kept at the highest level. Any open breach of fair treatment is soon known to every employee in the department. So base all hearings solely on fact-finding. When the facts point to a justifiable decision, make the decision and execute it promptly.

To promote a friendly atmosphere of trust and respect, the office of the overseer should be open to every employee regardless of the problem; but solutions are subject to the rules and regulations of the department. For instance, no employee can leave work without permission from the second hand. Problems not related to work can directly affect the quality of the work. Hold all personal problems in strict confidence unless, by consent of the employee, the personnel department is asked to assist.

You will run the gamut of every trait in human nature; it is inevitable because people are people. A cooperative spirit can be maintained among all employees if a just leadership is exerted at all times by you and all supervisory personnel within your department.

—Safety

Physical and mechanical safety hazards must be sought out and corrected wherever possible before an accident happens. But accidents do happen—almost invariably because of human error and lack of foresight. Accidents cost money, not only to the employee but also to the company through possible loss of high production, good quality, medical fees, and insurance.

Stress that safety and safe habits result from individual effort. Everyone must be safety-conscious, not only of their own person, the machines they operate, and the materials they handle but also of their coworkers.

Whenever an accident occurs, an on-the-spot investigation is undertaken at once. A written report is made to the overseer on a standard form. This form requires the complete history of the cause, the name and occupation of the employee, when the accident occurred, the names of witnesses, if any, and recommendations to prevent a similar accident.

Second hands conduct the investigations.

Injured employees must report to the first-aid room, and all injuries must be reported. The safety engineer receives all accident reports from the first-aid room. When the insurance forms arrive to be filled out by the overseer, the accuracy of your information depends on the on-the-spot-investigation report. Do not depend on your memory. Memory is often vague and conflicting.

You must attend the semimonthly safety meetings in the conference room. At these meetings, accidents are discussed, preventive action is planned, recommendations are made, and general safety is discussed.

Under the direction of the overseer, departmental safety meetings are held once a month with the second hand acting as chairman. A committee of three employees is appointed for a three-month tenure. Safety-committee members should be encouraged to seek out other employees of the department for safety suggestions, and credit should be given where due.

Safety slogan contests are periodically sponsored by the company, with cash prizes offered. Every employee is urged to enter.

The over-all responsibility of the overseer is again emphasized in all matters concerned with safety. All employees should be encouraged "To Work Safely Again Today."

—Training and Trainees

After new employees are screened by the personnel department, a personal interview must be given by the overseer and not delegated. This personal interview is important, and not only for human relations. It gives the overseer the first opportunity to explain the policy of the company and the department, the nature of the task, what is expected of the new employee, and what the new employee can expect from his supervisors. Interviews should be brief, informal, and friendly. First impressions may not be lasting impressions, but they help get the new worker off on the right foot.

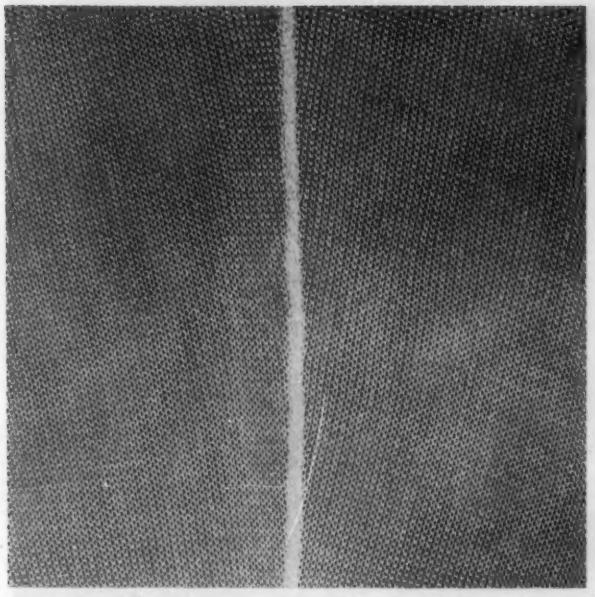
All trainees for nonskilled or semiskilled tasks, requiring from a few hours' to a day's training, are paid the full hourly rate. Trainees for spinning, doffing, spindle setting, overhauling, or any other task classified as skilled, receive a minimum learner's rate. Two step increases precede the full skilled rate, and step increases are granted on the recommendation of the second hand. Training periods for the various skilled tasks vary.

New workers are not allowed to join the union for at least six weeks. Thus, on the recommendation of the second hand, the overseer can summarily discharge a new worker if all facts warrant such action, without a hearing and representation by the union.

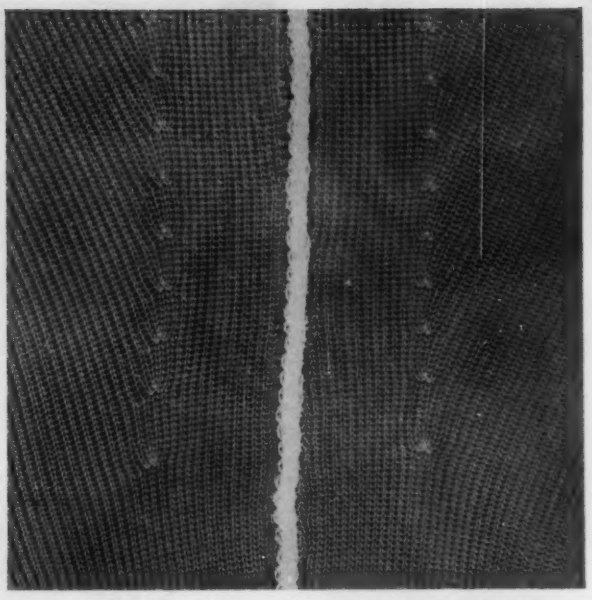
All trainees are given on-the-job training. They are assigned to select skilled workers, who receive remuneration for this service. This plan has proved successful, and many trainees have taken over full assignments ahead of their timetable. It is the custom of your department for the overseer to personally congratulate each successful trainee. All second hands are familiar with trainees' timetables, and weekly progress reports are made to the overseer.

Unskilled and semiskilled employees should be encouraged to study skilled tasks on their own rest-period time. Whenever possible, promotions should be made from this group. Many of our skilled employees came from the ranks of the unskilled.

This manual lists most of your major responsibilities and many of the duties involved. However, the overseer's duties and responsibilities constantly vary from day to day. As overseer of the department, you must direct all activities within your department.



FASHION-SEALED hose shows no fashion marks. The fashion marks are locked in the seam.



CONVENTIONAL HOSE has fashion marks concentrated in a smaller area on the calf compared with the new hose

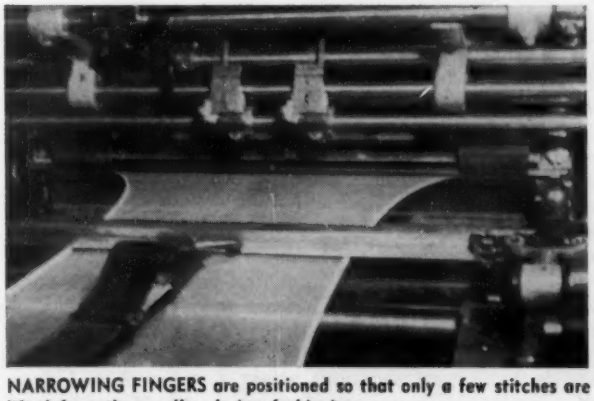
How Clementon Makes FASHIONED-SEALED STOCKINGS

► **Fashion marks in this new full-fashioned stocking are hidden. The construction reduces multiple runs and relieves tension on the fashion marks.**

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

ONE OF THE ADVANTAGES claimed by Clementon Hosiery Mills, Clementon, N. J., for fashioned-sealed stockings is the lessened tendency for seams to twist during wear. The mill has been knitting these stockings for more than a year; and now that modifications to knitting machines are completed, no special troubles are encountered.

Narrowing is done on only a few needles at the selvage.



NARROWING FINGERS are positioned so that only a few stitches are lifted from the needles during fashioning.

Runs that fan out because they extend from one fashion mark to the next are reduced. The fashion marks are hidden and locked in the seam.

The new stockings are produced at the same speed as conventional types. Knitting-machine speeds are the same, and the number of narrowings is about the same.

Seaming proved a little more difficult at first, but seamers were soon retrained, and seaming production is back to normal again. The selvages must be knitted clean to get good seams.

Inside Points Removed

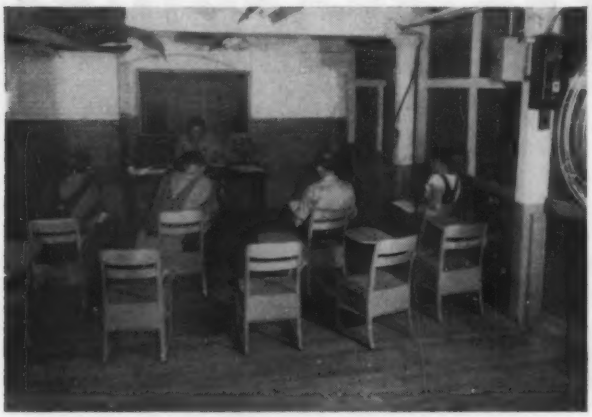
The first attempt to produce the fashioned-sealed stockings was done by removing points from the inside of the narrowing bar. Small fingers, such as those used for diamond-point toes, were used to close the toe. However, extra operations were needed to bring the small points into play. So another method was worked out:

Now, the regular narrowing fingers are used, but changes are made to the narrowing machine to rack the points out farther than before.

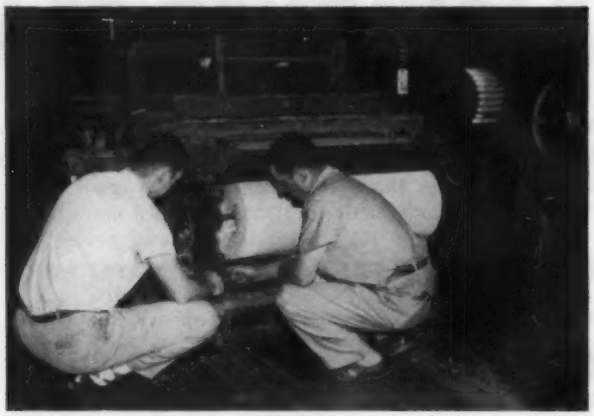
Several narrowings are made immediately below the after welt. These narrowings extend about the same length as on conventional stockings.

CONTINUED ON PAGE 210

CLASS WORK begins by tearing down a loom motion so that loomfixers learn basic settings. A study of the let-off reduced seconds.



CLASS-ROOM STUDY follows the loom work. Here, loomfixers learn why they make the loom settings. Discussions follow the instructor's lecture.



TRAINING NEEDS are checked on a loom in the weave room by Assistant Superintendent J. A. Bradshaw and Loomfixer Instructor Charlie Smith.

LOOMFIXER-TRAINING Program Gives Quick Results

At the end of the first six months of operation, training results at Fulton Bag & Cotton Mills are—

- **4½% more production**
- **4% less seconds**

By RICHARD B. PRESSLEY, Associate Editor, TEXTILE WORLD

By combining practical weave-room training with classroom study, Fulton Bag & Cotton Mills, Atlanta, Ga., has come up with loomfixer-training methods that have improved loom running conditions considerably.

Training Shows Quick Results

The greatest gain from the loomfixer-training program came during its first six months of operation; production on a three-shift basis was upped from 87½% to 92%; seconds dropped from 6% to 2%.

After the first six months, gains came slowly but there are no flare-ups of seconds and sudden dips in production.

Loomfixer training at Fulton Bag is directed by Assistant Superintendent J. A. Bradshaw. He works directly with the instructor, Charlie Smith, who is a former weave-room foreman. The only operating cost of the program is the instructor's time.

Classes are held in an isolated section of a warehouse where interruptions are few. The class room contains one loom of each model in the weave room. Looms are X-2, XP, L, X, E, and D models. There are Warner & Swasey weaving machines, too; but so far they aren't included in the loomfixer-training program.

One section of the training room is arranged much like a school class room. There are chairs with arm rests for holding written material and for taking notes, an instructor's desk, and a blackboard.

Draper Corp. loom manuals, a loomfixer's textbook, and Textile World are used to explain the basic loom motions and the prevention of cloth defects.

Training Covers 75 Men

The training program covers 75 loomfixers and warp men. The instructor spends two weeks on the first shift, two on the second, and two on the third. Four to six men attend the classes together. Each class is 45 mins. long. Each man attends two classes a week and attends a total of four classes in the two-week schedule.

While the loomfixers attend the class, their jobs are run by warp men and by side loomfixers, who double over the jobs.

Each loomfixer is given a copy of a schedule with his section number on it. The schedule gives the day and the time he attends school. The names of spare loomfixers and warp men are also on the schedule. Each man is given 5 mins. before and after the class to walk to and from the classroom. The schedule is followed closely, and no time is lost.

Class work is divided into two parts:

1. Loom work. The instructor tears down a loom motion and explains how it works. Then he rebuilds the motion and shows how each setting should be made. The loomfixer goes through the same procedure and demonstrates each point and each setting to the instructor.

2. Class study. The instructor uses the manuals and other printed material to explain further how a given loom motion works. Actual loom parts are shown to the loomfixers during the lecture. Sketches on the blackboard help explain loom settings.

During the loom-study period, each loomfixer brings up his own problems on the particular motion being discussed, and the instructor and other loomfixers pool their thoughts to solve all problems.

Following the class session, the instructor goes to the weave room and helps each loomfixer tear down the motion being studied on one loom of his section. By this time, each loomfixer has a pretty thorough knowledge of the correct way to set up the loom motion.

This procedure is followed on each of the three shifts.

During the loom-practice session in the class room, each loomfixer is shown how to use the proper tools for the job. He is also required to own a minimum number of tools shown on a checklist. The instructor goes through the weave room on each shift periodically to inspect each loomfixer's tools for physical condition and to be sure he has those required on the checklist.

Loom motions to be studied are selected in a conference held by the assistant superintendent, weave-room overseer, second hands, and loomfixer instructor. A motion is selected because it is needed more urgently than others. For example, the take-up and let-off motions were studied recently to reduce seconds caused by thick and thin places. A few months ago, instructions were given on putting in new shuttles because shuttle costs were too high. Results were good in both cases.

By the time the complete loom is covered in the loomfixer-training school, Mr. Bradshaw expects seconds to be still lower and weave-room efficiency to be greatly increased.

REQUIRED TOOLS

Open-end wrench, ¼ in. x 5/16 in.
Open-end wrench, ½ in. x 9/16 in.
Open-end wrench, ⅝ in. x ¾ in.
Open-end wrench, ¾ in. x ⅞ in.
Open-end wrench, 1 1/16 in. x 1 ¼ in.
Screwdriver, 6 in.
Screwdriver, 12 in.
Hacksaw
General-purpose pliers
Offset boxwrench, ¾ in. x ⅞ in.
Box wrench, 9/16 in.
Flat chisel, ⅜ in. x 8 in.
Flat chisel, 7/16 in. x 6 in.
Center punch
Pin punch, small
Pin punch, large
Hammer, ½ lb.
Hammer, 2 lb.
Straightedge, 12 in.
Straightedge, 24 in.
Reed pliers
Setscrew wrench, 5/16 in. x ⅜ in.
Setscrew wrench, ⅜ in. x 7/16 in.
Setscrew wrench, ½ in. x ⅝ in.
Crank arm and battery wrench, 1⅝ in. x 1 7/16 in.
Hand drill
Leather punches

ALTERNATE TOOLS

Ratchet
Extension, 20 in.
Extension, 10 in.
Extension, 3½ in.
Universal joint
Square socket, ½ in.
Square socket, 9/16 in.
Square socket, ⅝ in.
Square socket, ¾ in.
Square socket, ⅞ in.
Square socket, 1 1/16 in.

90 BAGS PER HOUR are handled by this conveyor between the warehouse and sorting room. This automatic switching point operates from photoelectric eye (arrow). One man, with hand truck, loads the rubber-belt conveyor via the weigher and two men unload the chain conveyor in the sorting room. In the warehouse, a tiering machine is used, with two men on the pile and one at the bottom.

Bell Makes HIGH-QUALITY TOP To Its Own Standard

● At The Bell Co., Worcester, Mass., a 25-grams-per-meter top is made on a Continental system. Two gillings precede S.A.G. combing; and after a can-gilling operation, top is stored ready for finish gilling.

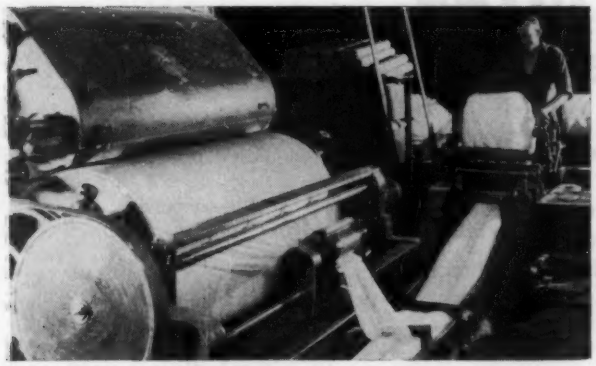
● After sorting, the stock is put through a Hunter opener and then dropped to the scouring train. At the end of the dryer, an emulsion is applied and the stock is trucked to the third floor via an elevator.

● Here is how Bell does it—

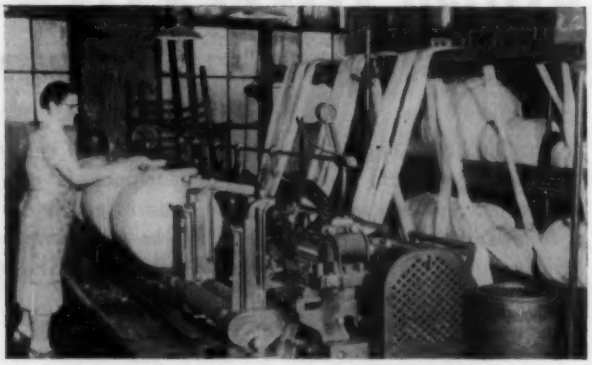
By **THOMAS B. WINSTON,** Assistant Editor, TEXTILE WORLD

WOOL SORTERS grade out quality to Bell requirements according to the type of fabric. These territory fleeces are being checked for grade (64s) and length of fiber (2¾ to 3½ ins.). Low fleeces are removed. Bell separates 56s and below and britch wool for resale; 58s, 62s, 64s, 66s, and 70s are used. South African and Montevideo wools are also used—about 10 types in all.

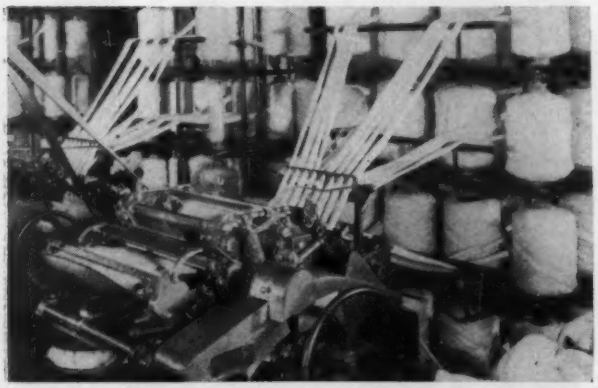
WASTE SORTERS separate French rings, which are sold. They also remove threads from spinning waste and foreign fibers from spinning threads. Bradford spinning laps are reused after threads are removed, and portions of drawing and dyehouse laps are also reused. If the waste is not desirable, it is sold as is. Four sorters work one shift.



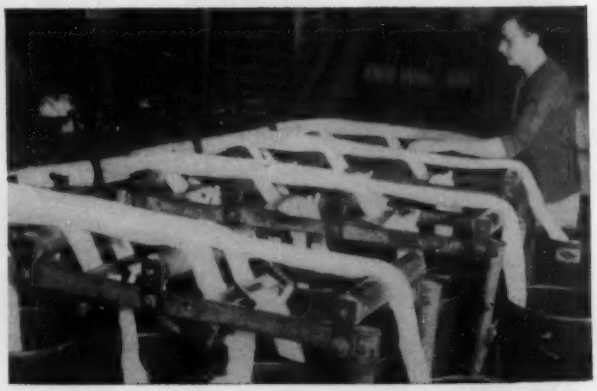
13 CARDS deliver into two balling heads—six cards from one side and seven from the other. The cards are hand fed, and production is about 35 lbs. per hr. on 64s onto about 30-lb. balls. A 55- to 60-grams-per-meter sliver is made per card. Five of the cards were the last cards to be shipped from France before World War II started.



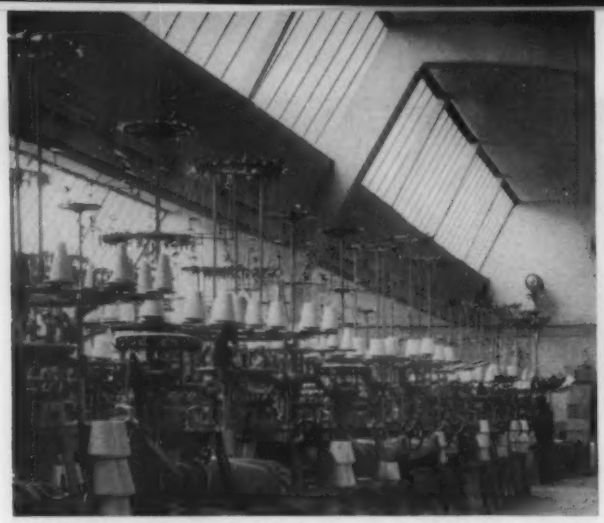
FIRST PREPARER is run from four balls of light sliver from six-card set or three balls of heavy sliver from seven-card set. The draft is adjusted slightly, between 5½ and 6. A 25- to 26-grams-per-meter sliver is delivered from the first preparatory. A five-head second-preparer gill box delivers a 7.5-grams-per-meter sliver for the comb.



S.A.G. COMBS make a 23-grams-per-meter sliver, and much attention is paid to evenness and cleanliness. One man checks the comb weights, and the second hand and overseer keep check on quality at all times. Production is about 15 lbs. per hr. on 64s. Fine pinning, up to 30-gauge pins, demands that the combs be kept in perfect condition. The laboratory also checks comber quality.



CAN GILL prepares a 25-grams-per-meter sliver, and this weight is also the finished top weight. After the can gill, the top is taken to top storage, and the stored top is then drawn on as required for finish blending on four- and three-head gill boxes. The finish gill box is held to under a six draft, usually 5 to 5½. The gill boxes produce about 200 lbs. per. hr.



ROOF CONSTRUCTION in the knitting room is of barrel-vault construction with Vermiculite insulation. Fluorescent lighting is suspended at an angle from the roof. This construction and lighting prevent excessive lint accumulations above the knitting machines. Power lines and heating pipes are cast into the floor.

BIAS STRIP is cut from tubular-knit fabric on these automatic spiral cutting machines at the rate of 1 mi. per hr. The strip, used for neck bands on T-shirts and cuffs for underwear, is wound onto a roll. One girl looks after three of these machines, which were designed at the Pasold plant.

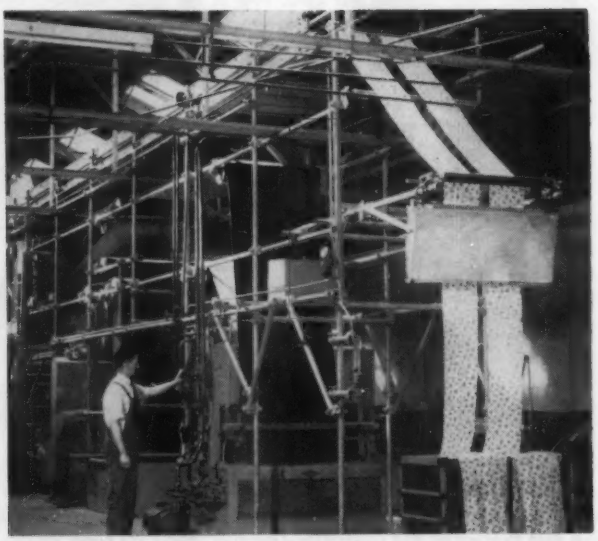
British KNITTING MILL *Has Many Improvements*

● Pasolds Ltd., Langley, Bucks., produces 36,000 children's underwear and outerwear garments daily. Much importance is given to research and efficiency. · An idea for improvement is developed into a working model that is followed up with a prototype built in the engineering shop.

● Here are a few peeks at some of the ideas developed by Senior Director E. W. Pasold and his brother Rolf.

By E. WALFORD, McGraw-Hill London Bureau

ELASTIC BRAID was formerly wound onto reels, but the relaxation of the braid could not be controlled; so the reels were eliminated. The braiding machines now drop the elastic into containers that are taken directly to the sewing machines.



MULTICOLOR PRINTING is done on a machine designed and built in the plant. A single operation of the new machine prints clear designs in several colors on the whole circumference of the tubular knitted material.

What Joanna Does About ENDS DOWN in Spinning

Keeping spinning ends down under control is a job that requires a lot of trouble shooting. Joanna Cotton Mills works toward good spinning by keeping check on—

- **Humidity**
- **Rings**
- **Top rolls**
- **Spindles**
- **Travelers**
- **Break drafts**

By JOE DELANEY, Superintendent, Joanna Cotton Mills

AN ENDS-DOWN REPORT seldom shows exactly where trouble exists. Actually, there are not many ends down that can be assigned one definite cause. About half or two-thirds of ends down are usually marked as unclassified, with "ends down caused by other ends down" running a weak second.

To ask the one who checks the end breakage to diagnose the cause of the stop is easy. To have him spend the time it takes to get to a broken end ahead of the spinner and look at the end on the bobbin; check the lap on the scavenger roll for yarn waste and roving waste; note the top rolls, the ring condition, and the traveler condition; and cast a quick eye on the roving in the creel isn't so easy.

Small wonder that the proportion of unassigned causes is so high. The checker simply doesn't have the time and perhaps the skill to determine the exact cause of the break.

Some things can be determined, however.

Ends May Result From Lint

Not long ago, we found high ends down caused by flying lint and lint on travelers. Upon checking, we found that when the spinner became rushed she quite often failed to pick her top clearers on schedule. When we pointed out how essential it was to stay on schedule, we reduced ends down from these causes by two-thirds.

On another occasion, our end-breakage report showed we were running into too many roving breaks. This got us real busy on the roving frames. We had recently installed a roving-frame stop motion. This device requires a fairly tight end in order to hold the drop eye in a vertical position.

Due to a change in our stock, we had been making roving lighter than usual and running the yarn weight on the light side. This had always been considered normal practice, but we found that the roving was stretched with added tension and the stock in the spinning frame spun a poor yarn with high end breakage and an excessive number of roving breaks.

Our remedy was to get the roving weight back to standard size and take pains to hold it there. Ends down in spinning showed an immediate reduction when the new roving was creeled.

We favor checking ends down by the hour. All ends are lumped into a block on the check sheet, showing the hour, the relative humidity, and the time of doff, if a doff should occur.

Cleaning Causes Ends Down

We usually find that the spinner comes on the job feeling fresh and eager to set a fast pace of work. She wants to get ahead of the job in order to slack off later when she may become tired. She also wants to have her job in good shape at shift change. For these and other reasons, we generally find more ends down at the early part of the shift when more ends are broken in cleaning.

A frame is a fussy contrivance because ends down are slightly over normal right after cleaning. For this reason, we spread our cleaner operators on all three shifts in order to stabilize end breakage. We are then able to set up the same job assignment on all three shifts.

Let Supervisor Check Repeaters

Repeaters are ends coming down more than once on the same spindle. Certain spindles may be trouble-makers due to some mechanical condition. An experienced spinner can usually spot these spindles, flag them for the attention of the fixer, and have the difficulty corrected. If they show up on warp yarn, they aren't quite so easy to spot.

During the time the end-breakage checker is working the sides, it is possible for him to mark each spindle having a break. The supervisor can look these ends over to determine the cause of the breakage.

Another way to check repeaters is to place the entire doff from one frame on numbered pegs on a board. The doff may then be taken to a Barber-Colman tailing machine with several spindles equipped with tension devices. With a slightly excessive tension, the yarn will be spooled off under strain.

For details, see p. 97

Breakage can be marked to gouts or weak yarn and checked on the spindle that made the bobbin. On one such test we found a frame that had an excessively high

Based on a paper presented at Textile Div., American Society for Quality Control.

number of weak yarn breaks on yarn from one side of the frame.

We went back to the frame and talked to the spinner, who said that one side of that frame had always given her trouble. We started looking for the trouble. The front steel roll wasn't too good, as it had several worn necks. In our micrometer run-out tests, we found a good many sections with more than the allowable 0.003-in. eccentricity.

We changed the roll and ran another test. The result was still bad. We had our standards department check the yarn, and it appeared satisfactory.

We went back to the frame and pulled out every gear in the draft section and went over each one carefully. We finally found a back roll gear with a partially chipped tooth.

Try Less Humidity

Yarn in the spinning frame will stand plenty of heat but not too much humidity. We used to have trouble starting up our spinning after a week-end shutdown. One thing that helped us was our boss spinner's ideas on humidity. His method is to cut the water off the humidifiers one hour before stopping time at our week-end shutdown.

The heat controls are set to hold over 75° F. with no humidity on during the weekend. At start-up time, the room is put into full operation before any humidity is turned on. We have found that a highly polished ring and traveler will not take moisture without losing its superpolished surface.

If the room grows too cold, there will be an automatic increase in relative humidity. Should this happen, there will be some pitting of the rings to cause the work to run rough. So we keep it warm and dry in our spinning rooms during the week end.

We found best ends-down results came with the lower humidities. From 55 to 60 r.h., our end breakage was too high. We dropped the relative humidity to 55% with some improvement. This encouraged us to try 50% r.h., and it ran still better. We decided to go all out and succeeded in lowering it to 45% with still an improvement. We doubt that we can go lower than that.

The lower degree of humidity certainly helped our end breakage, but at a cost. Our yarns are somewhat fuzzier, which is to be expected. This same condition decreases the amount of yarn wound on the bobbin; so doffing costs are higher. We have slightly more shedding, which means more cleaning and higher sweeps.

During the colder months of the year, this low relative humidity offers no problem. In the summer time, our heat-control system has to work harder to hold normal working temperatures because of the loss in cooling from evaporating less moisture.

Lower Spindle Speeds Help

The usual practice in warp spinning is to run as fast as the traveler will stand to get the most production. If production is second to quality or the mill is so well balanced that there is a surplus of spinning production, the spindle speed may be lowered and better-running work can be had at slower speeds.

High filling-traveler speeds give excessive yarn tension and high end breakage, vibration, high bolster wear and replacement, oil throwing, dirty frames, and poor yarn quality.

More filling rings are replaced as a result of being broken by doffers during traveler changing than from being worn out by the traveler. About a year ago, we found our filling rings to be rather worn on one section of frames. Checking into our records, we found that these rings had been put on the frames in 1935 and were still giving a fair performance. They had not been turned.

When we put on new rings, we decided to check for concentricity. A dial micrometer gauge was set up, and we culled out any ring more than 0.003 in. out of round. These rings were put on one side of a frame, and rings found true and concentric were put on the other side of the same frame. We kept a record of ends down on this frame for about 5,000 spindle hours and were amazed to find better-running work on the eccentric rings.

Wider Travelers Reduce Ends Down

It is usually easier to fit large-circle travelers, and for this reason the average spinner likes them. The wider circle will also let gouts and thick places in the yarn spin on through. There will be fewer ends down.

However, the point of least return is soon reached; and then we have travelers running off balance setting up friction that soon burns up the traveler and causes the defect on the outside of the ring known as back-tracking. Replacement of the ring is the only answer to this trouble.

On the other hand, you shouldn't make a slub catcher of the traveler by using too small a circle. Such a traveler would chafe the yarn, cause high end breakage and drag on the inside of the ring, and create a wave-like pattern of wear on the ring surface.

Rolls May Cause Ends Down

Dirty, rough, and unoiled top rolls cause plenty of ends to come down. But even with the rolls in perfect condition, the never-ending task of keeping top-roll assemblies clean can be tedious and expensive. Modern long-draft units can operate efficiently only under relatively clean conditions because their chief enemy is lint attracted and held by an oil film.

Metal-to-metal roll and cap bars must be oiled regularly. However, oil drips, spatters, spreads, picks up lint, holds and builds lint into gouts and slugs, and requires expensive labor to apply and clean up after it.

It isn't too easy to get along with substitutes for oil. We tried several types of oilless cap-bar-neb combinations and found that they built up severe charges of static electricity. This static made more top clearer waste and more ends down than the regular setup; so we had to drop the oilless parts.

Check Bottom Rolls

We also check our steel bottom rolls for eccentricity. Any roll found with more than 0.003-in. run-out on the dial micrometer is taken out and straightened. Worn necks are also repaired. These faults cause an eccentric motion to the roll that inserts a short 3.146-in. wave effect into the yarn spun on that section of roll. When this yarn is woven into cloth, it shows up as a sort of checkerboard appearance.

On old frames, look for rough, cut, or scarred rolls. The older the frame, the greater chance there is to find worn flutes and flat spots in the rolls. These defects are prolific sources of ends down.

For many years, break drafts on three-roll frames have been commonly set at around 1.30. The draft, to all outward appearances, worked well and gave fair results. However, during the last few years engineers have found that better results could be obtained either with low break drafts (1.01 to 1.02) or high break drafts (2.00 to over 4.00). Between these ranges, results didn't show up as well.

We ran several checks under statistical quality-control methods on a break draft of 1.02. We found significantly fewer ends down and no gain in break factor.

THE PINBOARD has a numbered pin for each spindle and holds an entire doff from the largest frame in the mill. When the doff is completed, the board is wheeled into an adjacent room where each bobbin of yarn is tested for strength and gouts. J. M. Rowland, overseer of spinning, examines a bobbin.

FULL BOBBINS to be tested are lined up beneath a Barber-Colman tailing machine equipped with Kidde tension devices. Breaks and gouts per spindle are recorded on a special form that is sent to the standards department for further action. H. G. Boyce, overseer of spooling and warping, demonstrates the machine.

"Another way to check repeaters is to place the entire doff from one frame on numbered pegs on a board . . . ." [See p. 95]

MASS TESTING of Ends Locates Spinning Troubles

● More than 100,000 spindles are individually checked every 90 days for weak yarn and gouts. A simple procedure helps to establish proper work assignments, decrease ends down, and improve yarn quality

By **WILLIAM G. ASHMORE,** Associate Editor, TEXTILE WORLD

EVERY BOBBIN in Joanna Cotton Mills Co., Joanna, S. C., is tested for weak yarn and gouts at least one time every 90 days. When excessive breaks or gouts occur, the spindle that produced the yarn is checked and rechecked until the trouble is located and corrected.

This mass-testing system was established several years ago to pinpoint the variables in spinning that were plaguing the industrial engineer who at the time was attempting to set up work assignments. The system was so successful that it was continued. Other advantages are decreased ends down, improved yarn quality, and what amounts to a continuous overhauling program in the spinning room.

The heart of the testing program is a simple mill-made portable pinboard that looks like a table with numbered spikes sticking in the top. The board is pushed between the frames and loaded with a complete doff from a given frame. Then it is wheeled into an adjacent room where the yarn from each bobbin is tested on a tailing machine equipped with tension devices.

Breaks are recorded on a special form listing each spindle by number. When completed, the form is sent to the standards department for analysis. Spindles that produced more than three breaks—considered excessive—are listed by the standards department on a second form that is sent to the spinning room.

A section man immediately repairs the spindle and notes the cause of the trouble on the form. If he can find nothing wrong mechanically, the spindle is doffed again and the yarn is retested. This procedure may be repeated several times.

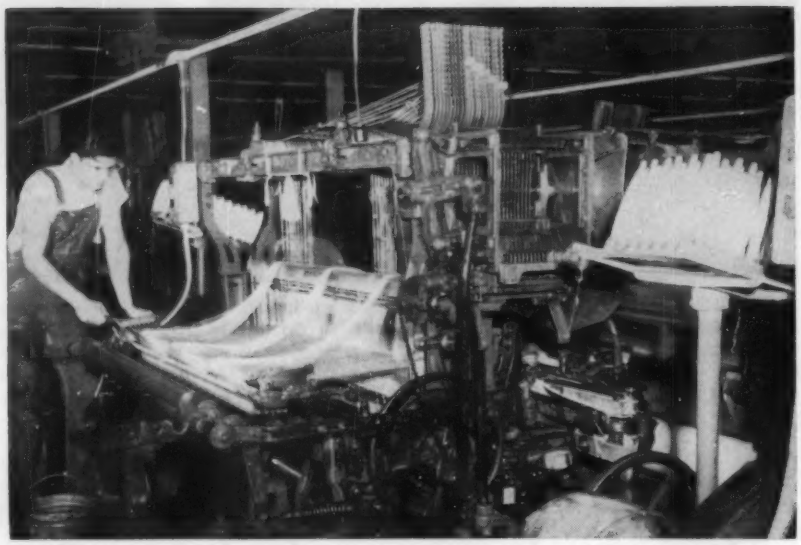
If absolutely nothing can be found wrong with the frame, bad roving is more than likely to be the culprit. Roving from a different source is tried, and usually this change clears up the trouble.

How Filament-Yarn Mills

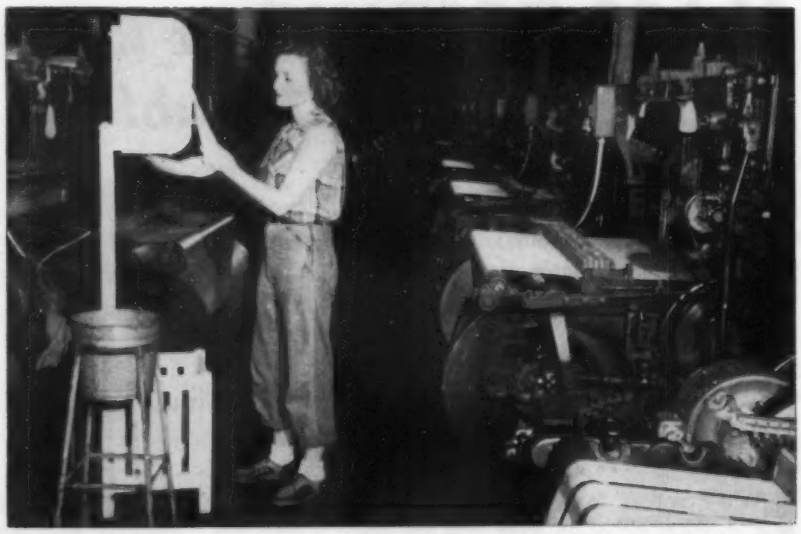
Cleaning methods used by six filament mills for—

- **Looms and fluorescent lighting fixtures**
- **Floors, walls, and overhead areas**
- **Reeds, harnesses, and drop wires**

By RICHARD B. PRESSLEY
Associate Editor, TEXTILE WORLD



LOOM CLEANERS work alone or in pairs. Tie-backs are cleaned in as little as 20 mins.; empty looms require up to 1 hr.



WEAVERS have individual wash stands at two mills. Four mills provide lavatories with running water throughout the weave room.

TEXTILE WORLD recently made a survey in six weaving mills running filament yarns to study their weave-room building and loom-cleaning methods. The result of the visits indicate that all the mills are greatly interested in having clean buildings and looms and are producing better cloth under clean conditions.

Another advantage found in clean weave rooms is that employees take greater pride in their work and try to keep the cloth clean.

Survey Covered Three States

Methods used in all six mills are similar even though the mills selected for the survey are widely separated in area; three mills are in North Carolina, two are in South Carolina, and one is in Georgia. The mills range in size from 257 looms to 650 looms. Both Draper and Crompton & Knowles looms are included.

Fabrics woven are dope-dyed fabrics, rayons, acetates, Dacrons, nylons, and other filament-fiber cloth.

The mills are all making determined efforts to keep their looms clean. No new ways of cleaning looms were found. In all mills, looms are cleaned at tie-backs and at warp cutouts. Rags, brushes, and cleaning solvents are the only materials and tools used to clean looms. Vacuum cleaning has been tried in only one mill. The cleaner was tested on filament-rayon and spun-rayon fabrics. The experiment was successful on spun rayon and is being used to clean a group of 108 looms but was not worth the extra cost and effort on filament rayons.

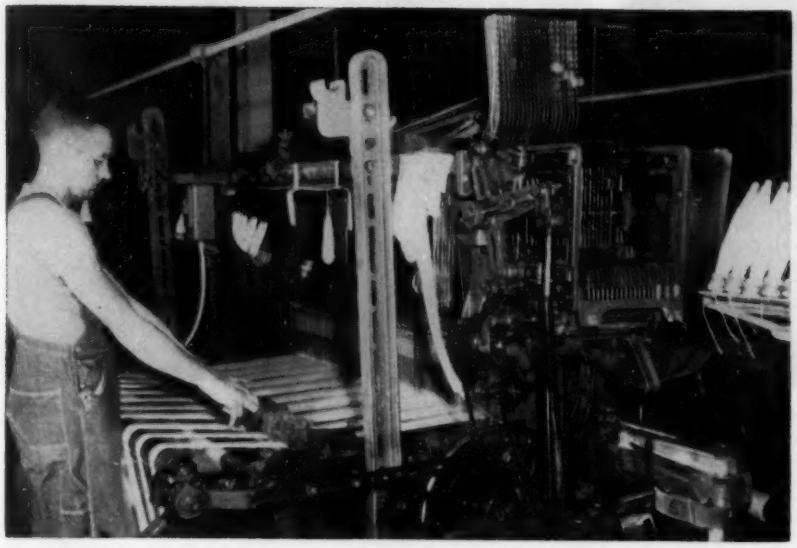
Fluorescent lighting fixtures, walls, and ceilings are all cleaned periodically, usually no more often than every six months. Since dust is the only substance that soils the buildings, building cleaning, except for floors, is no problem.

All mills give their floors a lot of attention. Three of the mills have hardwood floors, and the other three have concrete floors. The wood floors are maintained with the Tennant system and are resealed from every six months to once each year. Concrete floors are resealed once a year.

Perhaps the greatest aid in keeping a clean weave room in the mills surveyed is drip pans that cover the floor completely under each loom at one mill. The pan has rolled edges to hold all oil and grease thrown from the loom bearings, picking motions, and dobbies.

Cleaning labor costs were remarkably low in this 396-loom weave room.

Keep Weave Rooms Clean



REED CLEANERS clean reeds and drop wires at cut marks. The frequency of cleaning varies from one to three cuts.

FLOOR CLEANING ranges in frequency from every two days to once a week. All mills clean and reseal floors at least once a year.

Two loom cleaners on each shift clean all looms, sweep once a shift, and mop under the looms once a week. The weave room is exceptionally clean.

Another mill has drip pans with sides under the picking motions of a group of 50 C&K looms. The pans are emptied once each week.

Four mills have drip pans under dobbies and harness sheaves to protect the warp and woven cloth from oil and grease. One mill has drip pans under the dobbies only, and one mill has them under the harness sheaves only.

Mills are supplying equipment for weavers and loomfixers to keep their hands clean. Four mills have wash basins with running water throughout the weave room near each weaver and loomfixer.

Reed cleaning at the loom is a constant problem. All six mills are cleaning reeds at cut marks on at least part of their fabrics. Reeds are generally cleaned at every third cut mark on rayon and at each cut mark on nylon and Dacron. Drop wires are also cleaned when the reeds are cleaned in all mills except one.

Reeds are cleaned by regular reed-cleaning employees or by employees who do other work, for example, cloth doffers. Weavers do no cleaning work at all except in one mill.

All mills take particular care in cleaning reeds, harnesses, and drop wires when patterns are cut out of the looms.

Air conditioning does not make a great difference in cleaning methods. Two mills have refrigerated air conditioning, three have air-changing systems, and the sixth mill is not air conditioned at all. The percentage of relative humidity does not make any appreciable difference in how dust or warp-shedding residue sticks to looms or to the building because the relative humidity in all mills is low; the average is from 60 to 70%.

Oil Affects Cleaning

The viscosity or type of oil used apparently is important in keeping cloth and looms clean, since two mills have changed the type of oil or grease used because of excessive spattering. The crank arms spattered oil at one mill, and the oil was changed to a heavier viscosity to correct the trouble. At another mill, a nonfluid oil is used to replace common machine oil.

Oil dropped from the looms to the loom feet evidently has no effect on the cement used to hold mounting pads to the floor. All six mills have all their looms fastened to the floor with mounting pads. In one mill, one loom came loose in a 12-month period. At the other mills, the pads stay put.

Cleaning details in all mills are much alike; but, broken down by mills, the methods are:

Mill No. 1—"We have 400 XD looms and weave nylons, Dacrons, and rayons.

"A total of six men on three shifts do all our weave-room cleaning. They

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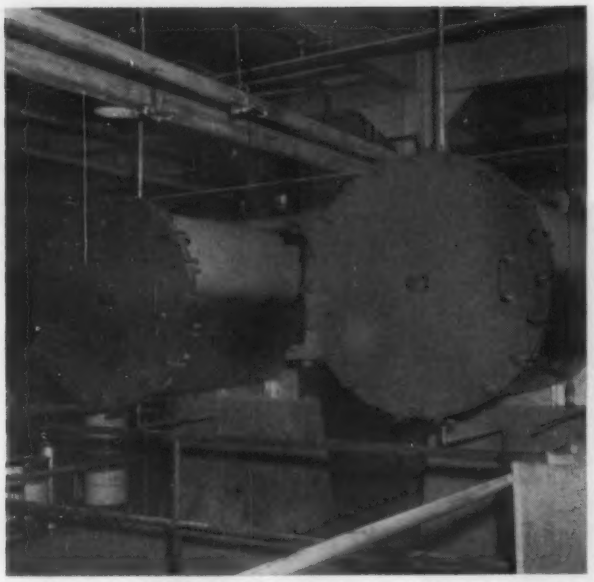
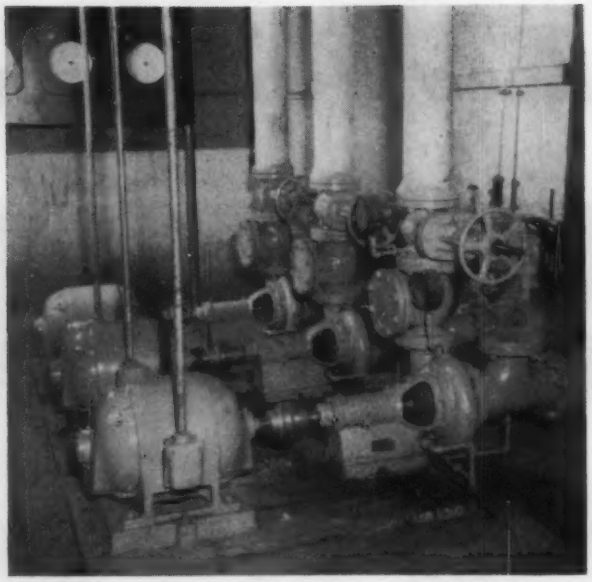


CENTRAL BATTERY of heat exchangers at Gregg Div. of Graniteville Co. is supplied from a collecting tank.



CENTRIFUGAL PUMPS beside collecting tank keep wash waters moving through the heat exchangers at Gregg.

Finishing Plants Save Money With HEAT EXCHANGERS

You may be literally tossing money down the drain if your hot waste water from processing goes directly to the sewer. Heat exchangers can—

- **Cut steam requirements**
- **Increase hot-water supply**
- **Operate at low maintenance and labor cost**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

COUNTLESS MILLIONS of Btus. slip down the drains of many plants that desize, bleach, dye, and finish fabrics through any number of hot-water processes. A large proportion of these heat units can be recovered for further use in the plant by conducting hot waste water through heat exchangers.

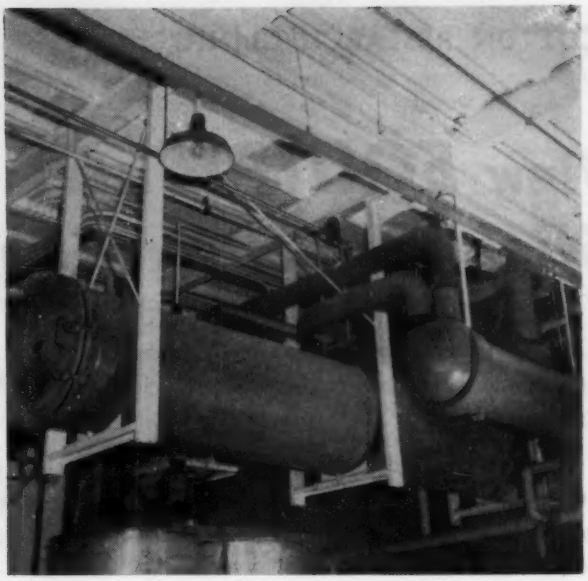
Dyeing and finishing plants are prodigious users of water, a great deal of it heated with live steam to the boil for processing. Washing and dyeing operations in which a constant flow of hot water is required are common, such as mercerizer recuperators, bleaching washers, and continuous dyeing machines. Continuous rope soapers often used in preparation or afterwashing consume quantities of hot water in the rinsing operation, usually with a generous overflow to the drain.

When possible, it is better to provide for the installation of a heat-exchange system when the plant is being designed; but there are no serious limitations of placement in most cases, except that hot waste-water lines should be made as short as possible to lessen heat loss. Gravity flow of waste water to a sump or directly to the heat exchanger may be advisable. In most cases, pumping is necessary either to or from the exchanger, depending on its location.

Many processing methods have overflows of both hot and cold water, which may be run off separately into trenches laid so that all hot wastes go to the heat exchanger and cold water to the drain.

The type of unit will depend a good deal upon the liquors flowing through it. Thought must be given to corrosion and the solids content of the waste liquor. One of the most popular types of heat exchanger consists of a shell lined with stainless steel within which are supported stainless-steel tubes. Waste water is run through the tubes, and incoming cold water occupies the space between the tubes and the shell. The shells will

SEPARATE TRENCHES receive hot or cold wash water. Hot water goes to the collecting tank that feeds the heat exchangers.



OVERHEAD MOUNTING at Pepperell includes a booster (small tank) to build up wash-water temperature.

vary in diameter from 2 to 6 ft. in textile installations, and they may be up to 25 ft. in length.

Installations Paying Off At–

Fairforest

The mercerizing department of Fairforest Finishing Div. of Reeves Bros., Inc., produces about 250,000 gals. per day of wash water at a temperature of 175 to 180° F. This water is passed through a heat exchanger, where it drops to 125 to 130° F. On a typical day in summer, the incoming cold water temperature was 77° F. After leaving the heat exchanger it averaged 112° F.—a gain of 35° F. at a flow of 172 gals. per min. Savings on a 24-hr. basis amounted to 83,062,500 Btus.

Gregg

Another type of installation, which was a part of the original plant design, is well illustrated at the Gregg Div. of Graniteville Co. Here, two very large Sims Textile Type units are fed from a collecting tank. The dyeing ranges and mercerizer are mounted over a drain system that provides a trench for hot waste water and one for cold water. All hot waste goes to the collecting tank. Two pumps run constantly to feed the heat exchanger; another cuts in if the tank level rises beyond a certain point. An average of 50,000 gals. of incoming fresh water per hour gains 42° F. by this system.

Pepperell

Pepperell Mfg. Co.'s Pepperell, Ala., bleachery is an outstanding example of the savings that can be achieved by trapping waste heat from processing liquors.

In this installation, six Sims Textile Type tube-and-shell exchangers are used. Three dyeing ranges, a mercerizer, and two bleaching ranges are equipped with individual heat-exchange units. The insulated heat exchangers for the dyeing ranges are mounted overhead, and hot waste water is pumped to them from a sump pump located below each range. All hot waste water flows to the sump. Two pumps force the hot water from the sump pump through the tubes of the heat exchanger. One of the pumps operates constantly; the other cuts in when the flow of hot waste water exceeds the capacity of the regular pump.

Each heat exchanger is accompanied by a booster unit. The booster is actually another heat exchanger that employs steam to raise the temperature of the warmed fresh water delivered from the heat exchanger to a point required for further washing processes.

6 Heat Exchangers Equal 1 Boiler

Pepperell's original boiler installation consisted of two B&W gas-fired water-tube boilers, each rated at 40,000 lbs. of steam per hour. Peaks up to 45,000 lbs. per hr. are possible, but Pepperell doesn't like to force the boilers at that rate. Even with heat exchangers, the load on the boilers varies from 80,000 lbs. to 100,000 lbs. of steam per hour and may even exceed the higher figure for short periods. Recently, Pepperell put a new boiler on the line to take care of increased processing and to allow for downtime for boiler maintenance.

Pepperell's plant engineer, B. J. Armistead, says, "We would not have had adequate steam for processing if it hadn't been for the heat exchangers. They are roughly the equivalent of another boiler."

To see how savings in steam mount up, take the output of the heat exchanger on one of the dye ranges. In one test period, fresh cold water was put through the shell at the rate of 156 gals. per min. at an initial temperature of 72° F. After going through the heat exchanger, the temperature of the water was 136° F.

The simplest calculation is to convert these regained Btus. to an equivalent amount of steam at, say, 150 lbs. gauge pressure.

Thus,

$$\frac{156 \times 8.33 \times 60 \times 64}{858} = 5{,}815 \text{ lbs. steam per hr. from and at 150 lbs. ga.}$$

Where: 156 = gals. per min. flow through exchanger
8.33 = lbs. water per gal.
60 = mins. per hr.
64 = Btus. per lb. rise
858 = Btus. as latent heat required to convert 1 lb. of water to steam at 150 lbs. ga.

CONTINUED ON PAGE 184

New EQUIPMENT and METHODS Highlight Cotton Clinic

- Experimental machines, instruments, and processing methods were discussed by research technicians at the recent Pinehurst meeting of the Cotton Research Clinic
- Papers digested in this issue cover an experimental carding cleaner, an improved air-flow fineness tester, a new electrical yarn-imperfection counter, twistless yarns, fabric properties of military goods, and another report on the processing performance of Pima S-1
- Papers on raw fiber and preparation were briefed in the April issue of TEXTILE WORLD

New Electrical Instrument Counts IMPERFECTIONS

- The Neptel counts imperfections in 50 yds. of yarn in 30 secs. It also measures the effectiveness of changes in various processing procedures, such as card production rates and picker beater speeds

By CHARLES C. WILSON, West Point Mfg.Co.

THE NEPTEL is an electrical instrument designed to count without visual examination the number of neps, seed particles, small bits of trash, and other imperfections existing in any sample of yarn. It ignores the usual thick and thin places in the yarn and counts only the very abrupt variations. A reliable count of the imperfections in a yarn sample is available in a very short time, since only 30 secs. are required to test 50 yds. of yarn.

The results obtained are reproducible to a higher degree of accuracy than that obtained in visual counting. A very close correlation has been obtained between the machine count and the average of a number of visual counts on the same sample.

The yarn passes through a high-intensity, ribbon-shaped beam of light and causes variations in the amount of light that falls onto a photocell. The photocell converts these changes into electrical signals whenever a nep or similar imperfection is viewed.

Generally speaking, the rate of change of diameter of an imperfection is inversely proportional to its length. A short imperfection has a very high rate of change, while a longer imperfection, such as a slub, has a low rate of change. This characteristic is utilized in the instrument to give a measure of the length of the imperfection. No imperfection with a diameter less than that predetermined by the setting will be in the total count, but all imperfections of that size and larger will be counted.

Calibration can be rechecked at any time in a very few seconds.

Neptel Is Evaluated

In order to evaluate the Neptel, a series of carded yarns were made for test purposes. These yarns were spun in a count range of 10s to 100s in intervals of 10. Three different staple lengths of cotton were used: 1⅛ in., 1⅛ ins., and 1¼ ins. In a deliberate attempt to make different grades of yarn, three carding speeds were used. Each staple length was carded at 3 lbs. per hr., 10 lbs. per hr., and 20 lbs. per hr. Obviously, the yarn made from stock carded at the lower speeds had fewer neps.

Visual nep counts were made on the webs produced at the three rates of speed. There was good agreement between the visual counts and the im-

perfections counted by the Neptel.

Each of the yarns spun was sampled at random, and a seriplane board was made of each sample. These boards were photographed, and a visual nep count was made from each photograph. The count of each entire board was converted to neps per 50 yds., to correspond to the length of yarn tested by the Neptel.

Results indicated that the highest correlation was obtained with settings of 500 to 600. In ordinary testing, the Neptel would be operated at the setting that corresponds most closely to a visual count. It would be ideal to have one setting for all yarns, but tests indicate that this procedure is not practical.

Winding Test Is Made

The Neptel can be used to measure the effectiveness of changes in various processing procedures, such as card production rates and picker beater speeds. For example, in a yarn that received various treatments after spinning, it was noted that the winding process appeared to increase the number of imperfections.

A test was made by winding similar yarns on three types of winders. The average number of imperfections from 10 bobbins was as follows:

Winder	Original yarn	After winding
1	294	353
2	244	306
3	321	438

The test proved that winding increases yarn imperfections, especially if the yarn passes over worn, grooved, or rough parts of the machine. Improper settings on the slub-catching plates also increase imperfections.

How Cloth Structure Affects FABRIC PROPERTIES

● Fabric properties important to the Defense Department, such as strength and air and water resistance, are directly proportional to the number of picks per inch

By **JOHN J. BROWN,** Southern Regional Research Laboratory

DEPARTMENT OF DEFENSE requirements call for fabrics to be highly resistant to the passage of water and air, to possess relatively high tensile and tear strength, and yet to be light in weight.

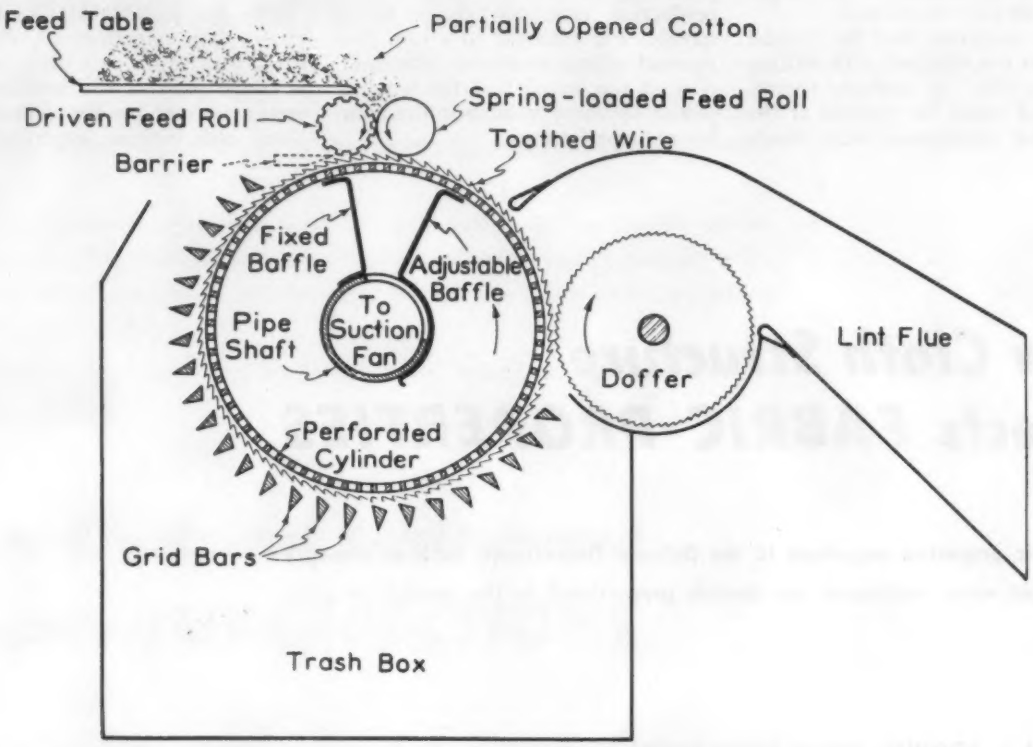
The effects of seven types of fabric structure on the physical properties of certain fabrics were studied. Of the constructions tested, basket weaves offered an acceptable compromise among the properties desired. A 2/2 basket is highly water resistant without any chemical treatment, and a 3/3 basket is slightly less water resistant and slightly more tear resistant. Regardless of the weave, as the picks per inch are increased, air and water resistance increase and tear strength decreases.

Bleaching, mercerizing, and dyeing significantly decrease the tightness of the fabrics; however, application of a flame-retardant and water-repellent treatment almost restore the original resistance of the fabrics to the passage of water and air.

FABRIC TYPE	THREAD COUNT		WGT.	TONGUE TEAR STRENGTH		AIR PERMEABILITY	HYDROSTATIC HEAD
	Warp per in.	Filling per in.	Oz. per sq. yd.	Warp lbs.	Filling lbs.	Cu. ft. per sq. ft.	Cm. of water
Mock leno	188	100	5.79	...	4.8	2.76	20.1
6-harness diamond twill	188	104	5.97	4.9	3.9	3.07	26.3
3/3 steep twill	188	217	7.89	4.1	4.2	.61	57.3
3/3 basket	191	210	7.70	7.8	7.2	.61	59.3
2/2 regular twill	189	135	6.57	5.5	3.5	.78	43.1
2/2 basket	188	165	7.15	5.6	4.0	0	100.3
Oxford	194	121	6.37	5.5	2.8	0	105.7

AT MAXIMUM PICKAGE, the effect of weave is shown. The leno tore across the filling. The air-permeability machine was not calibrated to read less than 0.61 ft.

Experimental CARDING CLEANER



TO REMOVE TRASH from machine-picked cotton, an experimental carding cleaner somewhat similar to a downstroke buckley-type cleaner, but with the customary beater replaced with a lickerin-type carding cylinder, has been developed by the Southern Regional Research Laboratory.

The machine has an improved feed system using a novel type of antipluck roll. This new feed roll rapidly advances a relatively thin layer of cotton to the carding cylinder while it simultaneously resists the efforts of the carding cylinder to pull the cotton away. The cotton is opened to such a degree that cleaning efficiencies as high as 60 to 78% in a single machine are feasible at production rates of 400 lbs. per hr. The experimental machine is quarter-size.

A detailed description of the machine and its operation was presented by George J. Kyame, of Southern Regional Research Laboratory.

TWISTLESS YARNS Show Promise at Bates

• Tek-Ja yarn is through its infancy stage and is approaching a healthy adolescence. There are both technical and commercial potentials for the process in specialized and general fields of application. However, capital investment per end of delivery is high, and other cost factors may slow its further development

By R. D. WELLS, Bates Mfg. Co.

THE TEK-JA PROCESS essentially is drafting the strand to the desired weight; impregnating it with adhesive; rolling, compacting, and shaping it with reciprocating rubbing rolls; and drying and packaging it.

Drafting is by conventional means, with many possible variations. The drafted strand, still laterally dispersed

as it leaves the front rolls, is delivered to the surface of the carrier or master rolls, which is wetted with a thin film of the adhesive mix. This transfer across the gap from the dry drafting element to the wet operation is effected by the spewing action of the front roll nip and by the licking action of the wetted roll surface that is moving at the same or slightly greater speed.

In some organizations, the first wet roll is an intermediate carrier. The strand follows around this roll and through a squeeze nip between it and a larger master roll. Roll surfaces and diameters are such that transfer is assured as the yarn leaves the nip for the smoother and less curved master roll.

Master Roll Is Wet

In other arrangements, the master roll is the first wet contact. The strand passes under a series of smaller opposed rubbing rolls that reciprocate axially. The sliding nips work on the strand and shape it stepwise to assure completion of the impregnation.

The action of the rubbing rolls is alternating; the stroke in one direction seems to condense the strand, and the reverse stroke partly opens it again. The fibers slide laterally to some extent, opening and closing, and also roll and unroll. The relative amounts of rolling and sliding vary with the type of fiber, the weight of the strand, roll pressures and surfaces, and viscosity of the adhesive. At each succeeding rubbing roll, however, the degree of lateral spreading or unrolling is less; and it is quite imperceptible at the final roll. The yarn is fully shaped and compacted as it leaves the last nip.

It is a feature of the Tek-Ja process, as now developed, that these rubbing rolls are so spaced and so timed in their reciprocation that all sections of the strand receive equivalent rolling action. This is important in achieving uniformity and in attaining a good degree of roundness of the yarn.

The yarn, after it leaves the dryer and is wound on the package, is stiff, brittle, and relatively fragile, as compared with normal spun yarn. The degree of stiffness and the amount of strength are proportional, in general. So far, we have used solid add-ons in the 4 to 8% range to avoid excessive stiffening and to keep the operation economical. In this range, the yarn has sufficient strength for rewinding and for some types of further processing and handling. Such yarns can be transferred to bobbins and woven as filling. Some adjustments in tensions, guides, conditioning, and winding pattern may be necessary; but no radical differences are indicated at present.

Yarn Lies Differently

The bonded twistless yarns lie in the fabric somewhat differently from spun yarns because the stiffness acts to lessen the amount of crimp that the yarn will accept at the beat-up and shed closing.

Twistless yarns have been knitted with some machine adjustments. Preferably, knitting follows application of a surface lubricant. Loop formation is slightly different because of relative stiffness, but it seems to be fully operable. Warp-knit materials have been made.

We have not been successful in weaving twistless yarn as warp because of the low elasticity.

The Tek-Ja yarns are slick and free of fuzziness. They tend to be not quite so compact as equivalent spun yarns of normal twist, and they are usually judged to be somewhat heavier than they really are. What strikes the mill man's eye most dramatically is

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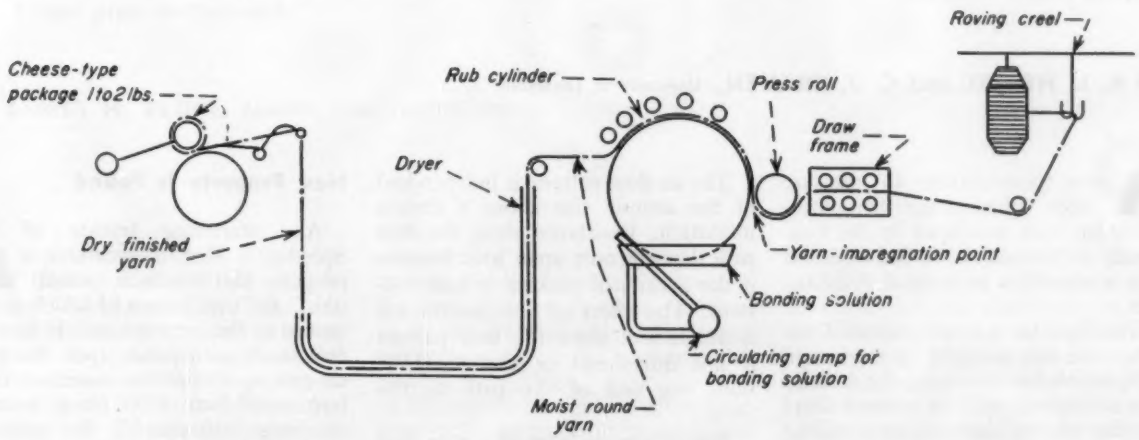
NO-TWIST-YARN Machinery



SPECIAL EQUIPMENT for manufacturing Tek-Ja no-twist yarn, illustrated in the above simplified arrangement, was described by John W. Powischill of Proctor & Schwartz, Inc.

Operating speeds range from 15 to 40 yds. per min. At the delivery end, the yarn is wound onto a cheese-type package weighing from 1 to 2 lbs. The machine occupies relatively little floor space. All the elements are close together and arranged so that the operator can easily reach them.

COTTON RESEARCH CLINIC

PROCESSING PERFORMANCE Of Pima S-1 Evaluated

● **A pilot-plant study of the new cotton shows it to have better appearance, uniformity, strength, and finishing qualities than the control cottons, Karnak and Pima 32**

RESULTS OF A PILOT-PLANT EVALUATION of the processing performance of Pima S-1 cotton were presented by Louis A. Fiori, of SRRL.

Karnak and Pima 32 were used for controls, and the three cottons were processed alike on conventional equipment into a range of relatively fine single and two-ply yarns.

It was found that the general processing performance of Pima S-1 is equal to that of Karnak and Pima 32.

Regardless of the organizational variables used in the evaluation, the Pima S-1 cotton produced yarns of better appearance and uniformity than did the other two cottons.

Yarns made from Pima S-1 were stronger than those made from Karnak, and were generally equal in strength to yarns made from Pima 32. Double creeling produced stronger and more-uniform yarns than did single-creel spinning for all of the cotton varieties tested.

The performance of Pima S-1 in two-ply constructions was equal to that of the two control cottons.

The general response of Pima S-1 to mercerizing and to subsequent dyeing was slightly better than that of the other cottons.

[*The commercial potentialities and results of mill tests were reported in TW, April, '55, p. 117, from a paper presented at the clinic by Dr. Burt Johnson of the National Cotton Council of America.*—EDITOR.]

Improved AIR-FLOW INSTRUMENT Measures Fineness

● **The Speedar, a new high-speed Arealometer, is accurate and rapid. It uses low-pressure differentials, is sensitive to fiber orientation, and measures a new property called "modulus"**

By K. L. HERTEL and C. J. CRAVEN, University of Tennessee

A NEW INSTRUMENT to measure fiber fineness and compressibility has been developed by the University of Tennessee. Called Speedar, it is essentially a high-speed Arealometer.

The Speedar is a self-contained air-flow instrument using low-pressure differentials for measuring the specific area or fineness of fibers without altering the relative humidity surrounding the fiber. It tests a 5— to 10-gram sample, is sensitive to fiber orientation, is rapid, and is simple to operate. The present model is fairly insensitive to dirt and trash and can be disassembled easily for cleaning. The reproducibility of fineness measurements is as good as on other air-flow instruments.

The air-flow pattern is independent of the sample size above a certain minimum. Resistance along the flow path depends only upon fiber fineness if the density of packing is held constant. The effect of fiber orientation is minimized, since the flow pattern is not directional; it changes 180° from one end of the path to the other.

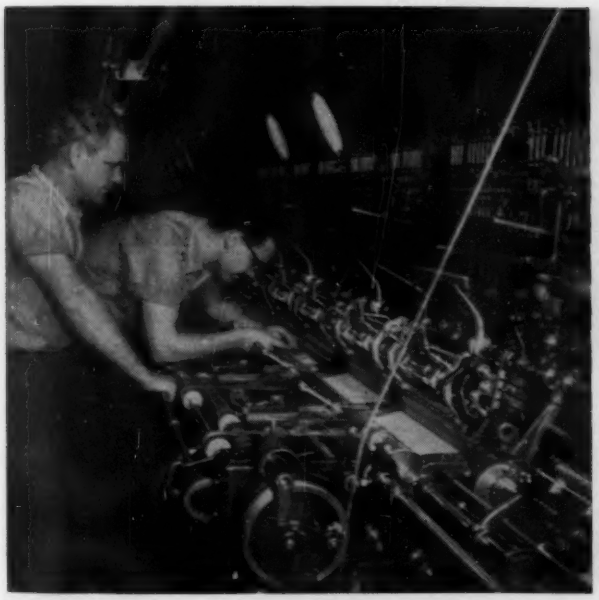
The minimum layer of cotton that can contain the flow pattern is about ¼ in. thick and weighs five grams. Any quantity greater than this has a negligible effect on the pattern.

The instrument itself consists of two interconnected portions, one for weighing and the other for compressing and measuring.

New Property Is Found

An interesting feature of the Speedar is that it measures a new property that has been named "modulus," the significance of which is unknown at the present time. It appears that modulus depends upon the type of cotton, its relative moisture content, parallelism of the fibers, amount of crimp, and possibly the maturity of the fiber.

No attempt has been made to determine the number of samples that can be measured per day with the Speedar, but the instrument is so rapid that the only limiting factors appear to be the sampling, identification of samples, and recording of results.



NEEDLE STRAIGHTENING is taught in the knitter-apprentice's second year of training by the knitting-room foreman.

TIMING THE CHAIN is a subject learned by circular-hosiery-machine fixers during their four-year apprenticeship.

How Bacon Trains
HOSIERY KNITTERS and FIXERS

Apprentice training in a hosiery mill pays off with fixers and knitters who—

- **Show high standards of workmanship**
- **Develop skills to meet mill problems**
- **Have pride in their work**

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

AIDED BY THE U. S. DEPT. OF LABOR, CHARLES H. BACON Hosiery Mills, Lenoir City, Tenn., has worked out an apprenticeship system designed to produce highly skilled workers. Since the training program was set up in 1950, 31 full-fashioned knitters and 12 circular-hosiery-machine fixers have been fully trained. There are 10 circular-hosiery-machine fixers in training at the present time.

Promising young men over 18 years of age are selected by the personnel director to work in the knitting rooms. Veterans and high-school graduates are given preference; however, boys with unusual abilities but lacking these qualifications are considered. The trainees selected are closely watched by the knitting-room foreman for three weeks and are then offered the opportunity to work on the apprenticeship plan.

The apprentice signs a written agreement with the company covering conditions of employment and training, as well as a schedule of the trade processes he is required to learn.

Training Time Varies

The time of training depends upon the trade at which the boy starts working. It is 4,000 hrs., or two years, for full-fashioned knitters and four years for the circular-hosiery-machine fixers.

Credit is given to apprentices who have had previous experience in the trade. Apprentices are on a probationary period of 300 hrs., and the agreement can be canceled by the company or the apprentice during this time.

The apprentice works under a supervisor of apprentices. This supervisor is a foreman, department supervisor, or qualified fixer. A monthly report is made by the supervisor on each apprentice.

The apprentice's rate of pay is advanced every six months until at the end of the training period he is on full

CONTINUED ON PAGE 188

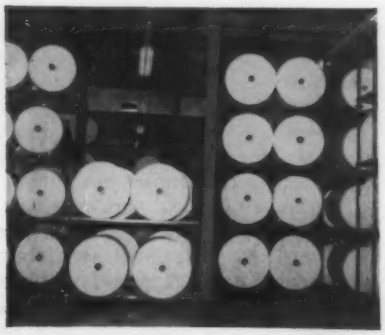
WIRE MESH CONTAINER filled with gray yarn is removed from the trailer by a fork truck. The truck goes into the trailer, picks up the load, and carries it to the storage area. Containers are later collapsed for shipment back to yarn-manufacturing plants.

MATERIALS HANDLING
At American Thread

American Thread Co.'s finishing plant in Sevier, N. C., handles over 225 different gray yarns and over 3,000 different finished products. Here are some examples of the materials-handling methods used at this modern plant—

- **Wire mesh containers for storing and transporting yarn**
- **Ball-warp storage in pallets that form tiers**
- **Material movement by lift trucks and pallets instead of on trucks with casters**

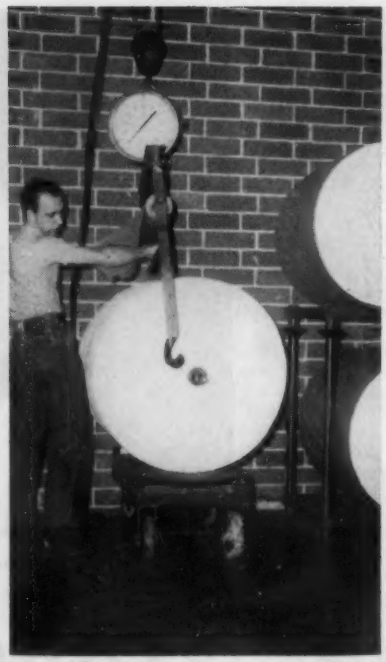
By MICHAEL LONDON, Assistant Editor, TEXTILE WORLD



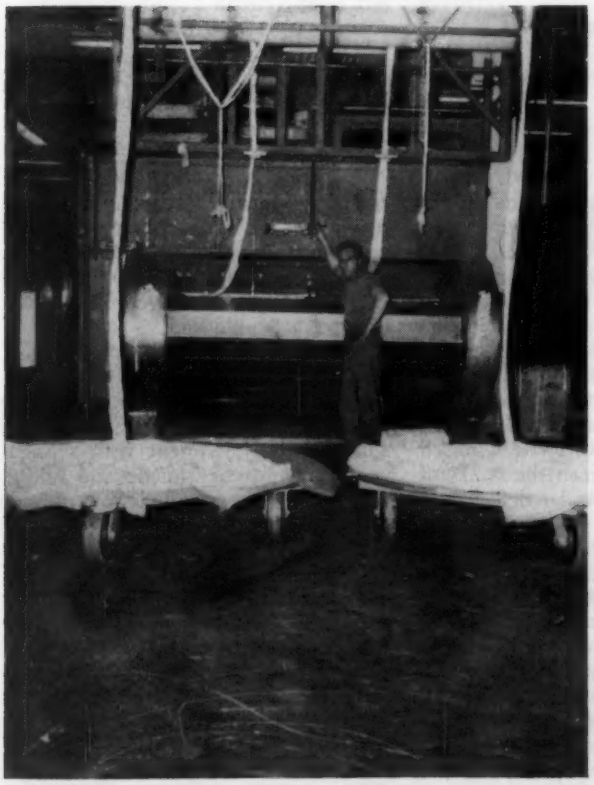
THE PALLETS are stacked on top of each other to make up tiers, where the ball warps are stored until they are processed through the mercerizer.

DYED YARN is placed in the larger Cargotainers for further processing. American Thread prefers pallets to trucks with casters because they do not pick up thread, get stuck, or gouge the floor.

LIFT TRUCK stacks the mesh-wire containers in neat tiers. Over 40,000 of these Cargotainers, made by Pittsburgh Steel Products Co., are in use at Sevier.



BALL WARPS of yarn are lifted with an electric hoist and weighed. The operator wraps paper around the warp, which is then placed on a pallet with legs.



PALLETS WITH CASTERS receive warp yarn from a dryer. The loaded pallets are wheeled to an area where the warps are removed. The warps then go through a winding operation.

BOBBINS OF YARN are brought to the winding department in Cargotainers; and the yarn, after being wound on springs for package dyeing, is put back into the same container.

ALERT WEAVER catches a misdraw and corrects it soon after it is made to eliminate seconds.

How To Prevent MISPLACED ENDS in Cloth

Misplaced ends are made up of seven distinct defects, and each defect has its own cause. By checking the specific defect, you can find the cure for—

1. Misdraws
2. Doubles
3. Missing warp ends
4. Mixed yarn
5. Misplaced filling yarn
6. Harness Balks
7. Mixed filling yarn

By **WILMER C. WESTBROOK,** Consulting Editor, TEXTILE WORLD

MISPLACED YARN ENDS cause a big percentage of total weaving defects. Many defects from misplaced ends weaken the cloth and also ruin the appearance. However, other defects are minor ones and are hardly noticeable. Misplaced ends appear both warpwise and fillingwise in the cloth.

1. Misdraws

Weavers, smash hands, and drawing-in hands must all have good vision if first-quality cloth is to be woven. Weavers and smash hands must be able to see where to place each warp end in the right drop wire, heddle, and reed and should also be able, by visual inspection, to detect any misdraws already in the cloth.

There are six kinds of common misdraws:

1. An end drawn in the wrong heddle eye
2. Ends drawn in the wrong sequence in the heddle eyes
3. Two or more ends crossed between the drop wires and the heddles
4. Heddles placed on the harness frames in the wrong sequence
5. Ends drawn in the wrong dent in the reed
6. Ends drawn in the spacing-bar hole in a heddle or the sliding feeder-bar hole of a drop wire

Warp ends drawn in the wrong drop wire often cause a small crack or streak in the cloth warpwise. Crossed or tangled ends between the banks of drop wires cause a similar defect.

2. Doubles

A double or extra warp end is caused by two ends drawn in a heddle eye where only one end should be placed. This misdraw is often made by two ends being stuck together and tied as one end by the tying-in machine. Such stuck ends are the result of improperly leased ends at the slasher or ends being placed in the slasher comb incorrectly.

Drawing-in hands or drawing-in machines sometimes pick up two ends and draw them together in a single heddle eye. Weavers often make the same mistake. Occasionally, an extra end comes up in the warp, sticks to another end, and weaves into the cloth to form a double end.

When ply yarns or reverse-twist yarns are used, the ends tend to twist together and sometimes several ends become misplaced in the warp pattern. This action is frequent with selvage ends, because the shuttle and filling yarn cause the warp ends to roll and twist.

3. Missing Warp Ends

Warp ends missing from the pattern result from several causes. When a double end is present, the double end is taken from a nearby heddle and there are two defects instead of one. Occasionally a drop wire breaks or is otherwise missing, and the loom continues to run when the warp end for the drop wire breaks. Mechanical faults in the warp stop motion also let the loom run with one or more end out

of the pattern.

Alert weavers quickly find these conditions and correct them, but it is often too late to prevent a tangle and several yards of second-quality cloth. When a weaver finds a tangle and does not inspect the cloth for an end out, he may lap the loose warp end around the warp beam or draw it into the selvage. When this happens, the missing end may not be detected until many yards of cloth are woven.

Lint should be blown out of the banks of drop wires before it accumulates enough to form rolls in the drop-wire eyes or becomes matted with the ends between the banks. Lint thus accumulated will support the drop wires, and they will not fall and stop the loom when an end breaks. This condition not only makes second-quality cloth but the accumulated lint is hard for the weaver to remove.

The accumulation of lint at the drop wires is often caused by warps without enough size in them, by atmospheric conditions in the mill, and by an incorrect adjustment of the warp line in the loom.

4. Mixed Yarn

When a fabric is woven with more than one size or color of yarns, the ends are misplaced. A constant source of misplaced ends is right- and left-hand twist yarns in the same pattern.

When an end is missing from the body of the warp, it is customary to take an end from the selvage to replace it; if the selvage end is different from the warp, mixed yarn results. But if the selvage ends and warp-body ends are the same, the crossed-over end is not noticeable in the cloth. However, if the end is pulled across the warp at too great an angle, a small crack or streak results.

If yarns of different numbers, colors, or materials are used or if the pattern or harness draw is complicated, a drawing-in draft should be used when two or more ends are broken.

5. Misplaced Filling Yarn

The most common type of misplaced filling yarn is a mispick. A mispick is an end of filling yarn placed in the wrong shed of the warp and is usually caused when the yarn breaks and the weaver restarts the loom without matching the filling. A somewhat similar defect is caused when an end of filling yarn is missing from the fabric and is generally known as a broken pick. Both mispicks and broken picks may extend from selvage to selvage, or they may be only a few inches long.

Mispicks are also made when the shuttle is thrown from the warp shed, is trapped by the shuttle guard and deflector, and enters opposite shuttle box with the loom still in operation. In this case, a trailing end of yarn is left outside the shed, and a mispick is made in the cloth. These defects can be caused by several things. Among the causes are:

1. Picker not parallel to the lay
2. Lay end or shuttle race not aligned properly
3. Harnesses not set or timed correctly
4. Warp shed too small
5. Broken warp end or foreign matter obstructing the shed
6. Shuttle worn out
7. Crooked picker stick
8. Picking motion not timed correctly

6. Harness Balks

Harness balks are more common in fabrics woven on looms with dobbies, but they are also made on looms with under-cam harness motions. This defect is similar to a mispick, but the end of filling is partially woven into the cloth. The common causes of harness balks are:

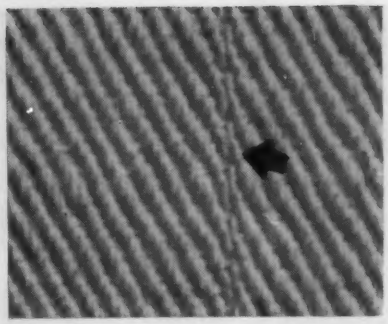
1. Sticking index fingers, wires, or hooks
2. Loose or worn pegs
3. Cylinder out of time
4. Worn hooks or knives
5. Weak pull-down springs
6. Weak harness springs (cam looms)
7. Harnesses set or timed incorrectly
8. Worn harness sheaves or sheave shafts
9. Misplaced dobby cords or harness strap
10. Worn treadle, treadle roll, pin, or rack (cam loom)

7. Mixed Filling Yarn

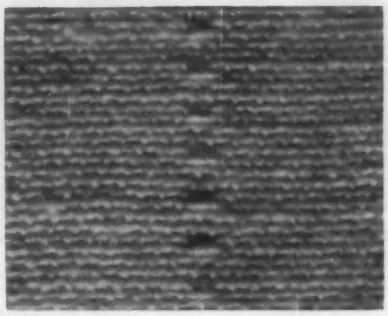
In fabrics woven on single-shuttle looms, mixed filling is usually caused by carelessness. A bobbin of the wrong filling-yarn number placed in the battery or shuttle leaves from a few inches up to a yard or more of cloth with mixed filling yarn.

Even though the mixed yarn is the same size as the regular yarn and the defect if not noticeable in the gray cloth, a serious defect may be present. If the cotton mix is not the same or if there is a difference in the twist multiplier, the breaking strength of the cloth or the dyeing qualities may be affected.

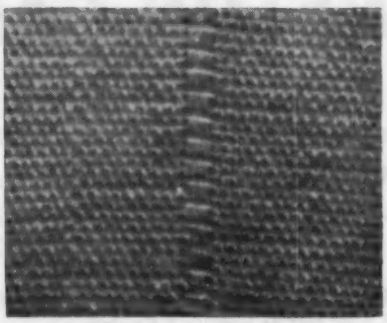
Fugitive dyes to tint filling yarn, colored chalk marks on roving and yarn packages, and plainly marked containers all help prevent misplaced yarn. However, the mechanical devices are useless unless employees cooperate to keep mixed yarn to a minimum.



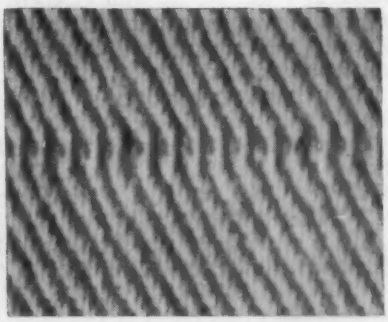
MISDRAW is caused by a warp end drawn through the wrong heddle eye.



END OUT is a common fault that results from mechanical failures or weavers' carelessness.



MISSING ENDS on this twill fabric came from a mechanical fault in the warp stop motion.



MISPICK in the filling yarn may extend the full width of the cloth or only a few inches.

CARDS AT REX are modified cotton cards with a fancy roll and other changes. Doffer speed is 7 rpm. for a 42-grain sliver of 1.5-den. nylon; production is 7 lbs. per hr.

How Rex Mills Doubled NYLON-CARDING Production

- Doffer speed of 7 rpm. boosted production from 3.5 lbs. to 7 lbs. per hr.
- Significant changes in other speeds and settings were also made
- Waste is down considerably. Evenness and appearance are good

By **JOHN F. de BORDENAVE,** Textile Fibers Dept.
E. I. du Pont de Nemours & Co., Inc.

REX MILLS, Ranlo, N. C., wholly owned subsidiary of Aberfoyle Mfg. Co., is carding 1.5-den., 1½-in. nylon staple at 7 lbs. per hr. with excellent results. Since production was increased from 3.5 lbs. per hr., card waste is lower, evenness is not significantly different, and yarn appearance is good.

Many speeds and settings—as shown on the accompanying diagram—were changed.

Among the speed changes were doffer speed increased from 3.5 to 7 rpm., lickerin speed increased from 530 to 600 rpm., and fancy speed increased from 1,630 to 1,800 rpm.

Significant changes in settings included: cylinder screen closed up at the center from 0.068 to 0.034 ins. and flats closed up from 0.015 to 0.010 ins. at all setting points.

The mill results reported on here are based on research sponsored by Du Pont's Textile Fibers Dept. and done by N. C. State.

Waste Is Lower

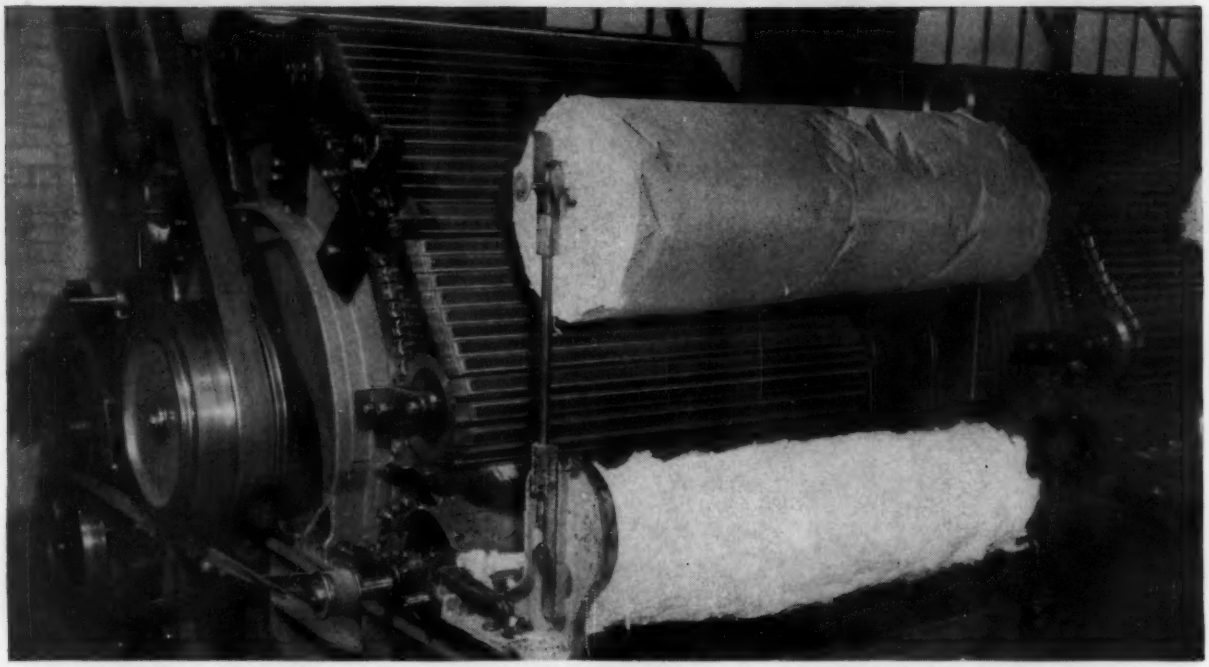
Stripping is ordinarily done at Rex every 8 hrs.; and it was normal to get 9 oz. of flat strips, 1 oz. of cylinder strips, and 1 oz. of doffer strips on 1.5-den. nylon.

Now, stripping is done at the same frequency, every 8 hrs., and the mill gets 10 oz. of flat strips, 0.67 oz. of cylinder strips, and 0.67 oz. of doffer strips.

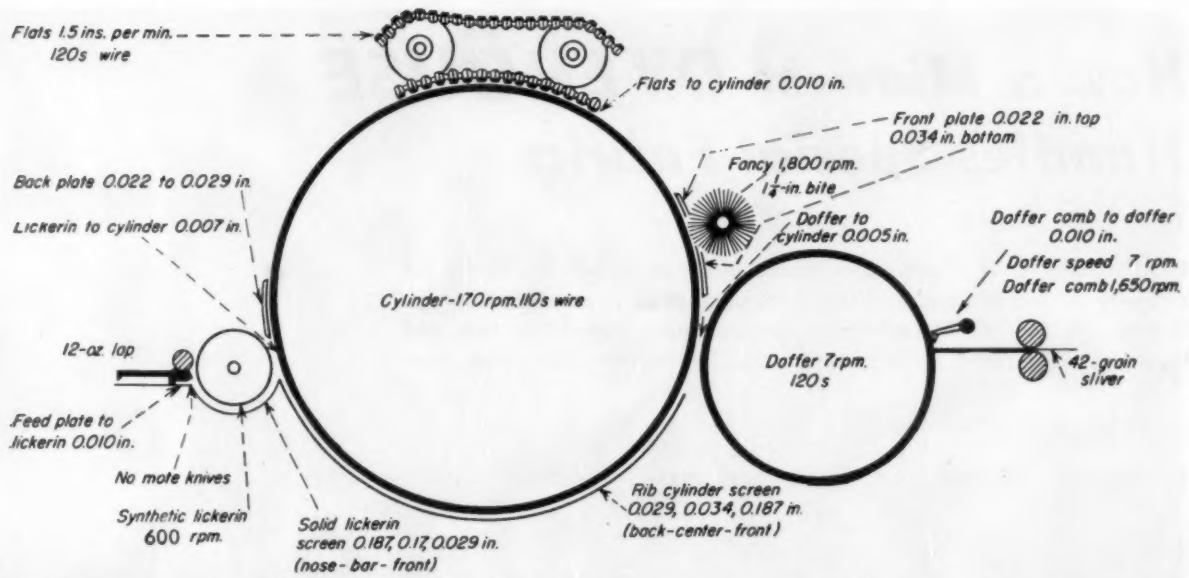
Since production is now 7 lbs. per hr. vs. 3.5 lbs. per hr., waste is almost half as much per pound of sliver.

On a percentage basis, the waste results look like this:

Sliver	98.66(%)
Flat strips	1.19
Cylinder strips	0.07
Doffer strips	0.07
Total	100.00



CLEANLINESS is the watchword at Rex, as evidenced by this card-room view. Laps are paper-wrapped, stripping is done once a shift, and the little fly that does accumulate is removed hourly.



THESE SETTINGS AND SPEEDS have proved most successful for carding 1.5-den., 1½-in. nylon. Rex Mills has over a year's experience under this setup, and both quality and production are high.

Evenness Is Better

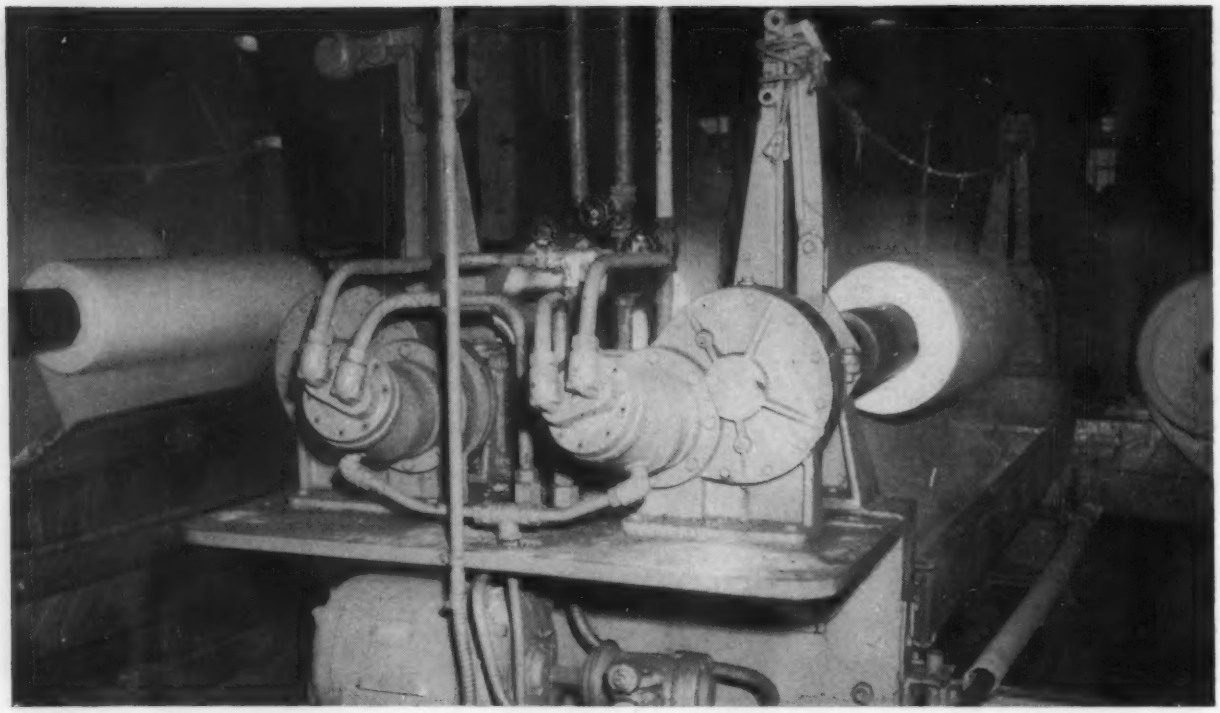
Rex spins up to 80s yarn from 1.5-den. nylon with two drawing processes and two to four roving processes. Average production is 30s to 60s.

Uster evenness of 42-grain card sliver is now 12.5%. Under the former speeds and settings, evenness of 38-grain sliver was 14%. Although this difference is not considered significant, the change is definitely on the positive side.

Yarn evenness is also quite satisfactory with the improved carding setup. There has been no noticeable difference in yarn appearance.

The new speeds and settings do not result in more frequent grinding and setting; the cycle is still 360 hrs. of operation.

At Rex, the cards are conventional cotton cards changed over to synthetics with a synthetics lickerin, a fancy, no mote knives, and a solid screen under the lickerin. Ball bearings have not been found necessary for the doffer comb.



HYDRAULIC DRIVES on Toledo's jigs are unusual. Supplied from a motor-driven hydraulic pump, this fluid-drive system is easily reversed and gives smooth starts that help eliminate wrinkling of the cloth.

How a Midwest DYEHOUSE Handles Special Fabrics

● At Toledo, Ohio, Toledo Dye Works processes a line of fabrics for a variety of specialized uses. One of its main items is auto head linings. Several lines that go into upholstery, surgical tapes, automotive trim, and luggage are prepared for coating at the Textileather plant next door.

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

THE TOLEDO DYE WORKS section of Textileather, a division of General Tire & Rubber Co., produces a variety of cotton and synthetic fabrics for special purposes. One of its principal lines is auto head linings.

For many years, the standard material for this purpose has been a soft-filled sheeting with a napped finish. Toledo uses a series of nappers to get just the right type of nap. It found that one run through several nappers produced a superior finish to the same number of runs through a single napper because each napper has characteristics of its own and an average is struck when a number of them are used.

After the run through several nappers, a shearing run is given the goods; then they are napped and sheared again. The total napping and shearing runs before dyeing depends on customer requirements.

Dyeing Suits Requirements

Sulfur and fast-to-light direct dyes are used in most cases for auto head linings. For light shades, the fabrics may require a peroxide bleach; but in dark shades, desizing followed by open soaping and drying is the usual preparation.

Sulfur dyeing is done in a range coupled to drying cans. Padding, oxidizing, soaping, rinsing, and drying are completed in one run.

The recent trend toward pastel shades in auto bodies has changed requirements in the head-lining field; so more and more vat colors are being used.

Toledo's jigs have hydraulic drives, a development of the engineering de-

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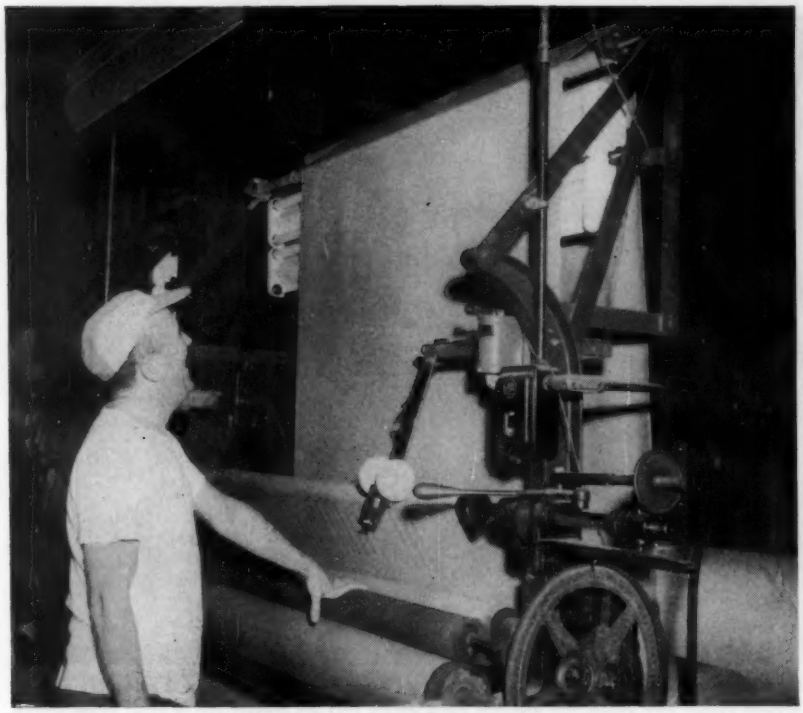
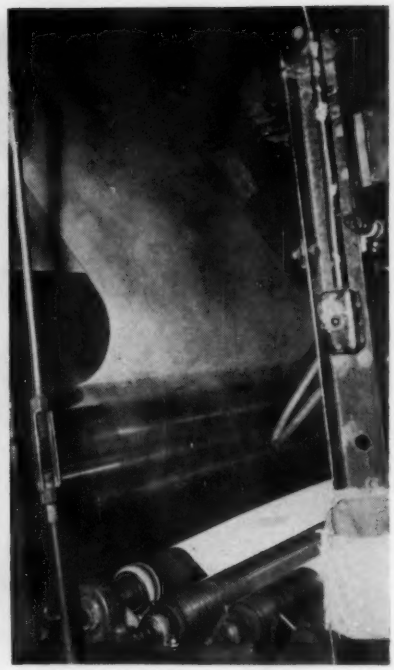
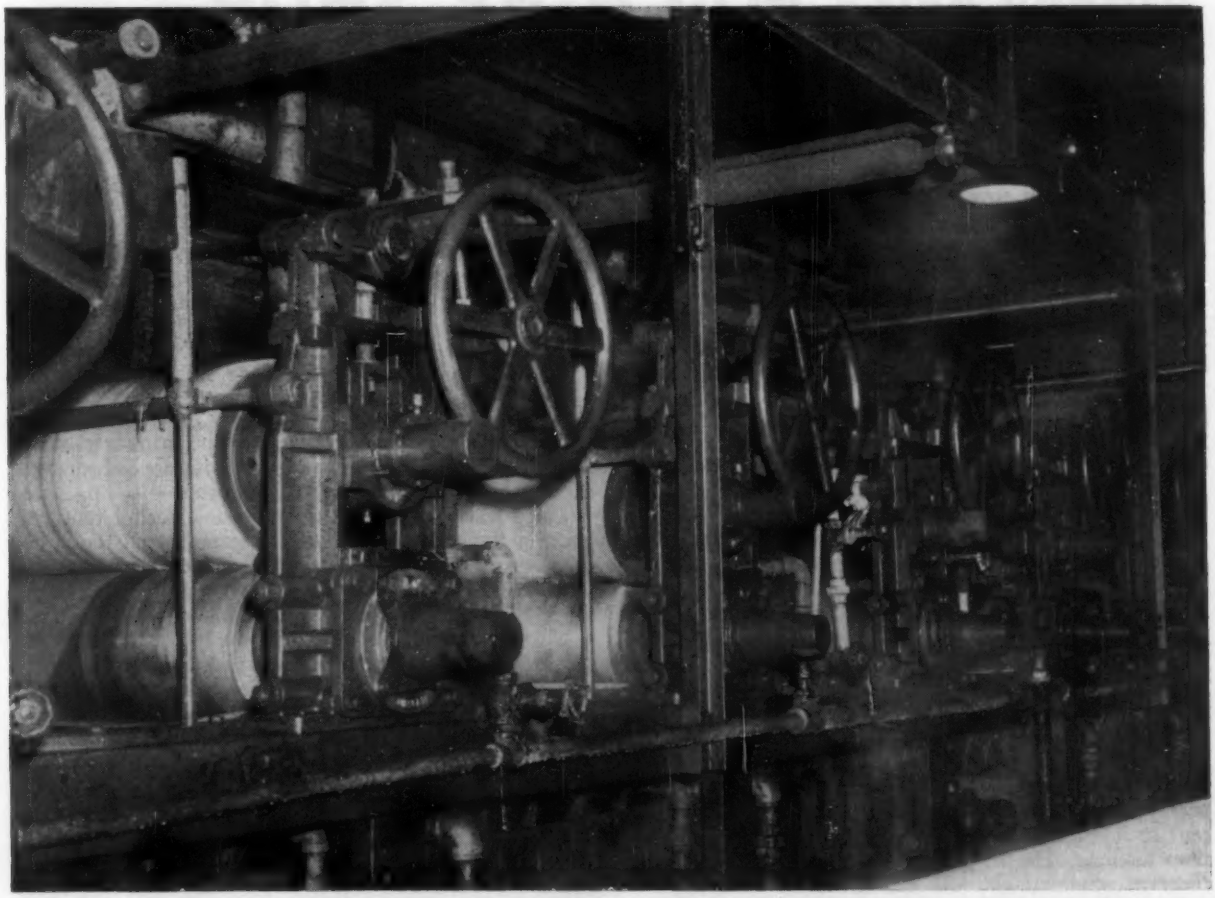


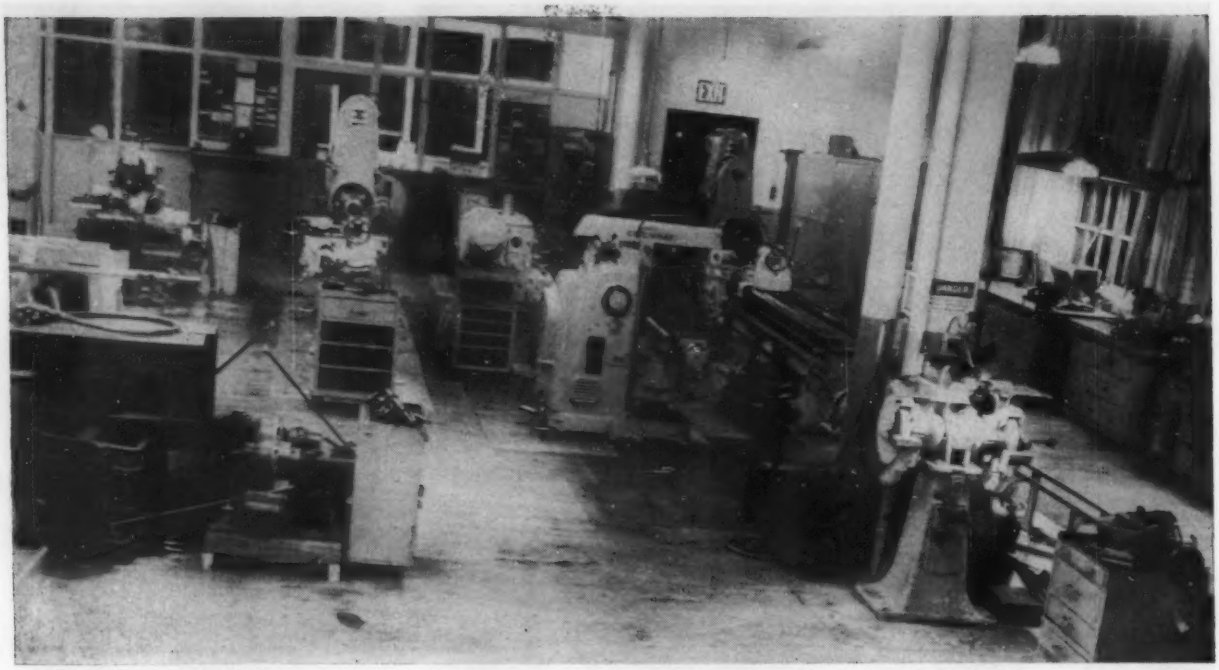
CAREFUL INSPECTION of auto head linings by experienced examiners includes checking for shade, level dyeing, and finished appearance of the nap.



PAD-DYEING of direct colors is a quick and satisfactory method of color application for fabrics that will be coated and made up into luggage and upholstery.



OXIDIZING AND WASHING of pad-dyed sulfur colors used for some head linings are accomplished in this eight-unit open washer. The pad and washer are in range with drying cans.



MACHINE-SHOP EQUIPMENT is versatile and capable of performing precision work on modern textile machinery. There is adequate storage space to build and assemble new machines of a special design and production machine parts before they are transferred to other departments.

Albany Felt's MACHINE SHOP— A Lesson in Order and Efficiency

● Located within easy reach of the manufacturing departments, the machine shop at Albany Felt Co., Albany, N. Y., provides economical service to all manufacturing departments. The machinery is versatile, and storage of tools and supplies cuts down mechanics' lost time.

By **GEORGE A. ESTABROOK,** Chief Engineer, Albany Felt Co.

THE MACHINE SHOP at Albany Felt Co. is set up and operated to provide economical service to all manufacturing departments. Since figures have shown that maintenance costs in the textile industry are amounting to as much as 3% of net sales, we have tried to keep these costs to a minimum by keeping waste down and using manhours efficiently.

The location of the machine shop has a great effect on the maintenance costs of the manufacturing departments. Here at Albany Felt, the machine shop is centrally located on the first floor of one of the main factory buildings, where a large window area provides excellent outdoor lighting and ventilation. There is also easy access to the other main mill buildings.

With the machine shop centrally located, and the carpentry shop, paint shop, pipe shop, and other crafts adjacent to it, there is close and effective supervision by the shop foreman. He has an over-all view of the operations and can coordinate the jobs efficiently.

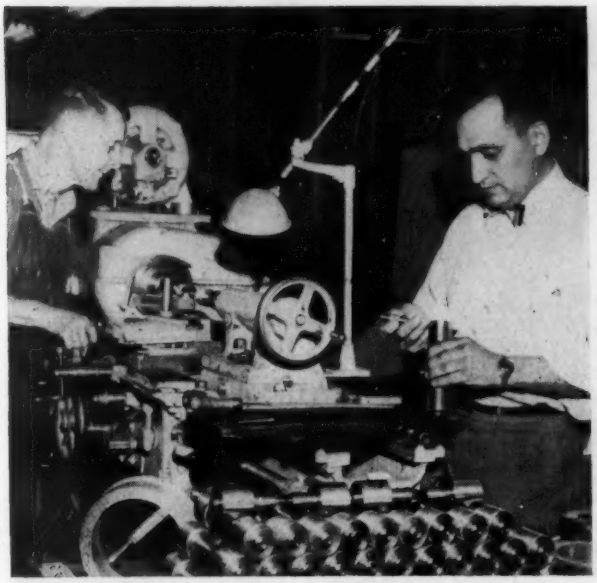
The tool crib is adjacent to the shop. Here the cutters, dies, miscellaneous small tools, and other parts used by maintenance personnel are kept. The parts are stored neatly, according to size and type, in divided drawers, cabinets, or special open racks or shelves.

The tool-crib attendant is responsible for all tools and parts in the crib; and he keeps a record of all the equipment taken out by mechanics and helpers. He sees that tools returned to the crib are in good condition and stored properly so they will be instantly available when required.

Next to the tool crib is the mill-supply stock room, where supply parts such as small castings, gears, bearings, bolts and screws, and wooden and leather parts are kept. The location of the tool crib and the mill supply stock room eliminates much of the mechanics' lost time, one of the hidden costs of maintenance work.

Here's Our Equipment—

The selective-head-type lathe, a versatile machine, has proved very satisfactory for maintenance work. Our machine, a 14-in. x 6-ft. model, has a compound rest, apron control, taper attachment, and direct motor drive. The actual swing is 16½ ins., and the distance between centers



SELECTIVE-HEAD-TYPE LATHE has a compound rest, apron control, taper attachment, and direct motor drive. Pressure rolls are being resurfaced with a very light precision cut to a tolerance of 0.001 in. The foreman is checking the work with micrometers.

BENCH-TYPE HORIZONTAL MILLING MACHINE is placed on a work bench near a large window where sufficient light is available for precision work. The machinist is milling temple holders for looms. A single shop job order sometimes comprises 200 temple holders.

is 34 ins. The hole through the spindle is 1¼ ins.

The high-speed lathe is used primarily for precision work on pieces up to 14 ins. in diameter and about 24 ins. long. The machine has many uses. For example, it cuts inside and outside threads, bores castings and machine parts, makes bushings, and turns gear blanks for looms, spinning frames, and finishing-department machinery. The machine is used for machining an individual piece or several hundred pieces requisitioned on one shop order.

A larger lathe turns down loom crankshafts, bores loom drive gears, and machines loom crank arms and crank throws. It also bores large-diameter hubs and handwheels. Roll shafts for rotary fulling machines are made on this machine, and rubber-covered rolls are turned down and repaired. The lathe is 24 ins. x 16 ft. and has a 24-in. swing of the head and a 17-in. swing over the carriage. The diameter of the hole through the spindle is 1½ ins., and the pitch of the lead screw is ¼. The depth of the bed is 14 ins., and the width is 19 ins. The lathe is equipped with a 5-hp. microspeed drive.

The larger lathe also machines journals for 60-in.-face fancy rolls and journals for workers and strippers. Occasionally, scouring-machine cast-iron bottom rolls 20 ins. in diameter with a 40-in. face are resurfaced on the lathe. Other work, too large for the 14-in. lathe, is machined on the larger machine.

Milling Machine Well Lighted

Two milling machines are used at Albany: a horizontal bench-type and a Cincinnati milling machine. The bench model has a 4½x18-in. table, and there are six speeds. The machine is located on a work bench near a large window where sufficient light is available for precision work. There is also enough storage space near the machine for finished or unfinished castings or steel parts.

The bench model machines parts for C&K looms, makes jig holders, and cuts standard and Woodruff keyways. It also does side and end milling of production-machine parts and bores and turns the outsides of castings and metal parts.

The milling machine also has automatic vertical and horizontal feeds; so it is quick and easy to repair items such as scouring-machine pumps, spinning frames, and twisters.

The Cincinnati milling machine is a 10x52-in. table model. It has a complete hydraulic control system and automatic feeds, including 16 spindle speeds from 25 to 1,500 rpm. The machine also has a rapid traverse motion; and an end-feed rotary table speeds up rotary milling work considerably.

The Cincinnati machine is used for rotary milling, cycle milling, and face milling of many parts of production machines. It cuts keyways on loom crankshafts, machines temple parts, and cuts spiral and spur gears. The machine also bores castings, cuts teeth for gears and sprockets, machines and splines delivery and drawing rolls, and mills pressure-roll bearings. Parts for many of the machines in the wet and dry finishing departments are machined on the Cincinnati machine.

Machine Saws Curved Contours

For straight sawing and sawing curved contours of metal, plastic, felt, cork, and hard-rubber parts, we use a Do-All contour machine. The machine has a work height of 12 ins., and the work table can be tilted to the left or right for special cutting jobs. Saw speeds are available from 100 to 1,000 ft. per min. Hydraulic equipment actuates the blade-speed control, the table tilt, and the work feed pressure. Irregular shapes are handled by a contour sawing attachment operated by hydraulic feed.

In addition to these machines, Albany also has the following metal-working machines: a 24-in.x15-ft. double-backed geared quick-change engine lathe; an 18x54-in. heavy-duty all-purpose lathe; a pipe-threading machine; a pedestal floor grinder; a 3-ft. heavy-duty plain radial drill; a 7-in. metal-cutting power saw; and a 75-ton vertical hydraulic press with a 3-in.-dia. ram.

The carpenter shop is located in a section of the machine shop. The carpenters work on both building construction and processing machines. They make shipping cases for

CARPENTER-SHOP MACHINES are located in a section of the machine shop. Carpenters make shipping cases and parts for looms and finishing machines. They also repair and construct wooden cabinets, tables, and chairs and do minor building construction jobs.

finished products and parts for looms and finishing machines. They also build and repair wooden tables, cabinets, and chairs.

Equipment in the carpentry shop is as follows: a 12-in. planer; a 20-in. band saw; a 20-in. swing saw; a Universal woodworking machine; a 16-in. rip saw; a 16-in. knife hand jointer; and an 8-in. circular saw. The Universal woodworking machine is equipped with a 6-in. jointer, a 3½x6-in. drum sander, and a 12-in. disc sander.

Welding Saves Money

Albany divides welding of production machinery parts into three categories: repairing small parts that are easily removed from the machine and brought to the machine shop; welding jobs done directly at the production machine by portable welding equipment; and the fabrication of machine parts.

Many items have been saved from the scrap heap through use of the first category. In the next category, when portable equipment is brought to the machine, oil and dirt are removed from the casting or part to be welded. Asbestos is then placed around the part to prevent sparks and fire; and a fire extinguisher is always available. Many times, the last class is more economical than making the necessary patterns, obtaining the castings from the foundry, and machining them to the dimensions and specifications required.

Welding equipment includes a Lincoln 200-amp. portable electric-shield arc welder and oxyacetylene welding equipment. There are also welding torches, bench holders for the welding rods, air and gas tanks on portable trucks, and portable grinding tools.

Oxyacetylene welding is used for welding cast iron, braising cast iron and steel, cutting metal parts, and bending rods, bars, and pipe. The electric apparatus is especially adaptable for stainless steel. Low-temperature welding rods are desirable because surface alloying can be obtained at temperatures below the fusion point of the base metal.

The machine shop also has a portable work-bench truck equipped with casters and a hard-wood top. It has shelves and drawers containing commonly used supplies and tools. The truck saves the time of mechanics and helpers when they do maintenance or installation work in different departments of the mill.

Storage Racks Save Time

Stocks such as angle iron, flat steel, steel shafting, and square and hexagonal steel are kept in structural-steel storage racks. A portable hacksaw is placed near the racks. When a mechanic needs stock of a certain size, he selects the appropriate material, sets it on an adjustable dolly stand, and cuts the proper length with the hacksaw. The remaining length is replaced in its proper place. With this storage rack arrangement, where each shape, grade, and size of structural and bar steel is kept separate, the inventory is easily determined.

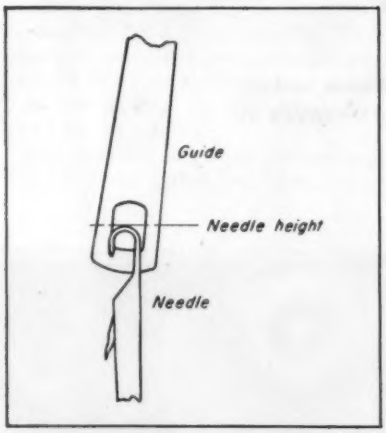
This layout is a time saver because it eliminates the necessity for one or more employees to get a long piece of steel, bring it to the shop for cutting, and take the remaining piece back to the storage racks.

For Best Production of RASCHEL NETS—

- Grind links to give smooth knitting
- Set swing cam with small motion
- Set needle heads low in guide hole

By JOSEPH E. RAYBIN

THE LAYOUT of specification sheets for raschel fabrics was described in TEXTILE WORLD, Nov., '54, page 124. The article dealt principally with tulle fabrics made from 40-den. nylon on 36-gauge machines. The chain setup was 2-0, 0-2, 2-0, 2-4, 4-2, 2-4, on the front bar and 0-0, 2-2, 0-0, 4-4, 2-2, 4-4, on the back bar. Here are some tips for setting up the machine to get the best results.



NEEDLE HEADS should be set just below the center line of the guide hole for best results.

1. Grind Links

In grinding links that rise from low to high, grind them in a straight line from the tip of the nose to the shoulder point to make for a smoother-running machine. The links on the back row can be ground off about $\frac{1}{16}$ in. on a diagonal line from the top tail end of the link because the shift from different-height links always takes place when the needles are in the down position. The down shift of the links, from high to low, is always constant regardless of the height of the drop.

2. Set Chains in Drum

Set the chains in the drum when they have been assembled with the needles in the down position. Set the first link in each row underneath the guide-bar pusher-arm roller. On the front row this link will be No. 2, and the back row will be No. 0.

As these links are also the threading point, place a chalk mark on these links so you can refer to this point at any time. Couple the chain around the idler drum, and adjust the chain so there will be no strain or slackness. To check the chain operation, be sure that you have only two guide bars on the machine and enough swing to clear the back and front of the needles.

3. Check Link Movements

Turn the machine over by hand and check each stitch or shifting of the front guide bar. The front bar should shift one needle space every stitch when it is past the needles in the farthest-out position. If some of the links shift sooner or later than others, check the grinding of the links. As the down shift is always constant, the ones that are usually not shifting properly are the rising links.

If a link shifts late, steepen the rise angle by grinding the tip of the nose slightly and continue until the shoulder is reached. If the link shifts too soon, the grinding angle is too steep. Remove this link and replace it with one that has been ground on a slightly longer angle.

Check the lay-in bar by noting the shifts when the needles are up. When the chain has been set properly, set the swing or guide-bar cam more precisely. As the speed of a raschel machine is largely dependent on the swing-cam motion, set this cam with the smallest swing conducive to good knitting.

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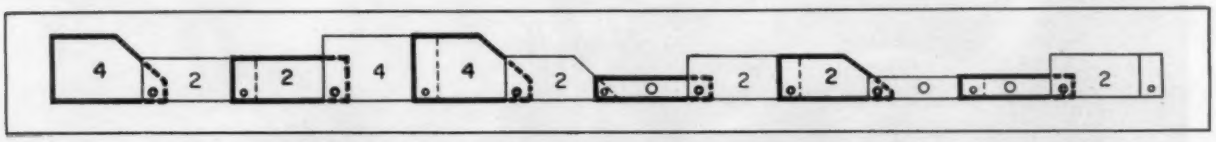
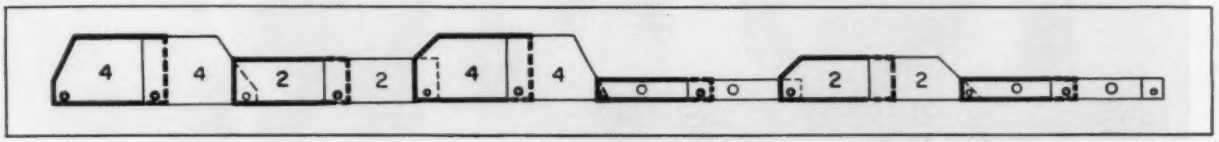


FRONT BAR CHAIN, which makes the ground fabric, should be ground to give smooth knitting.



BACK BAR CHAIN is the lay-in chain. Grind in a straight line from the nose tip to the shoulder point.

FOUR-ROLL DRAWING, seven ends up, follows carding in the new comber-preparation setup at this mill. The 52-grain card sliver is made into 36-grain drawing sliver. Three operators will run the 60 deliveries of drawing and three lap winders.

New COMBER PREPARATION
Cuts Waste, Improves Quality

▶ A Southern combed-yarn mill reduced comber noil 2% and improved yarn evenness and appearance with new comber preparation. As a result of further tests, it is going to replace all sliver lappers and ribbon lappers with preparatory drawing and lap winders.

By W. A. THOMASON, Jr., Textile Engineer

NAISMITH COMBERS were equipped with three-over-four draw boxes and 14-in. cans. Sliver variation averages about 18% with the new preparation and new draw boxes. Noil has been reduced from about 16% to 14%; and if anything, the yarn is cleaner.

LAP WINDERS are run 20 ends up and make 710-grain laps. The three lap winders and 60 deliveries of drawing will replace six silver lappers and six ribbon lappers. Yard-by-yard lap uniformity has been improved over 50% with the new setup.

THIS SOUTHERN COMBED-YARN MILL makes 20s to 50s single and ply knitting and weaving yarns.

About a year ago, the mill bought 112 deliveries of Saco-Lowell three-over-four drawing, 56 breaker and 56 finisher, to follow combing. The drawing is equipped for eight ends up; but with the present floor space, it has to be run six ends up. The front rolls are 1⅛ ins. in diameter.

This drawing replaced two-process four-roll drawing that had 1⅜-in. front rolls. The new drawing reduced finisher-drawing variation on a Saco-Lowell sliver tester from about 18% to about 15%.

The three-over-four drawing has coilers for 14x36-in. cans, and new 14-in. coilers were put on the combers. The mill is getting almost 40% more stock in these cans than it got in 12-in. cans.

To make laps for the 39 combers, the mill has been using six sliver lappers and six ribbon lappers.

It took out one sliver lapper and one ribbon lapper and put in 12 deliveries of four-roll drawing and one new lap winder to see how this system of preparation would work. It has done so well that the mill has made plans to replace all sliver lappers and ribbon lappers with 60 deliveries of drawing and three lap winders.

The draft in the preparatory drawing is 10.1. This high draft apparently causes the short fibers to come to the

CONTINUED ON PAGE 196

THREE-OVER-FOUR DRAWING after combing is run two-process six-ends-up. The mill would like to run eight ends up, but it doesn't have the room. The frames are equipped with extended creels and lifting rolls.

STEVENS' TRADEMARKS for several qualities of sheets are shown here. Each package is sealed in Vitafilm. Even with completely automatic packaging, every label is accurately in place.

STEVEN'S TRICOT SHEETS and pillowcases are special put-ups. On store shelves, they have much the same appearance as those shown here. Each color of sheet stands out through the transparent case.

How J. P. Stevens Co., Inc. PACKAGES Consumer Fabrics

New machines and wrapping materials make packaging almost fully automatic. Products packaged are ready for the customers' shelves, and they're—

- **Attractively packaged in new transparent wrappings**
- **Or shown in acetate cylinders**

By RICHARD B. PRESSLEY, Associate Editor, TEXTILE WORLD

THE UTICA & MOHAWK PLANT of J. P. Stevens Co., Inc., Clemson, S. C., is just four years old; consequently, the building and packaging equipment are relatively new. But new machinery and materials are constantly being added to keep the equipment and methods as modern as possible.

For example, two new machines for folding pillowcases have recently been added. One other folding machine has been in operation for some time. To keep packaging materials as modern as possible, Vitafilm, a transparent extruded vinyl film, covering a U-board printed with Stevens' ship trademark, is being used to wrap each product. The Vitafilm is automatically heat-sealed in wrapping machines and gives a strong film-to-film weld.

In addition to modern machinery and materials, well-trained employees adequately supervised keep the package goods moving rapidly at every process. The results are attractively packaged fabrics ready for the customers' shelves turned out at a high production rate.

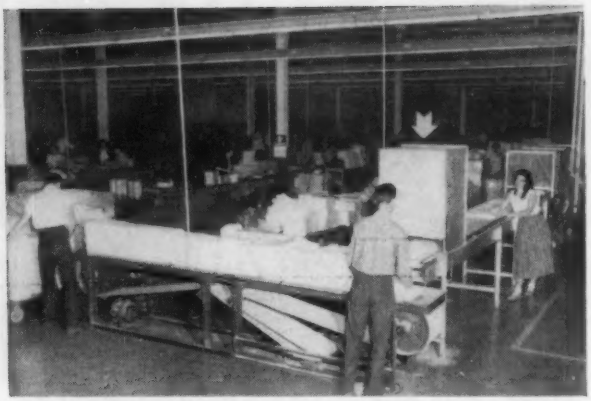
The Clemson plant is primarily concerned with fabricating and packaging three products: sheets, pillowcases, and diapers. Each product is packaged in its own assembly line in the same general room, but all three products are centered around one general conveyor system.

The modern air-conditioned building with clean new machinery provides ideal working conditions for high-production packaging. Popular music from a record player distributed through the department for 15 mins. each hour adds to the pleasant working conditions.

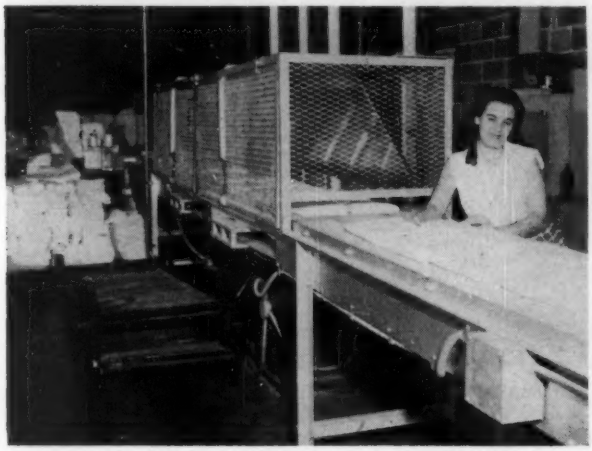
The pictures tell the story of Stevens' packaging.

How Sheets Are Packaged

SHEETS are folded on a table by teams of two girls each, who work together. Lines on the table control the size of the folded sheets. The folded sheets are neatly stacked in three-sided aluminum trucks.

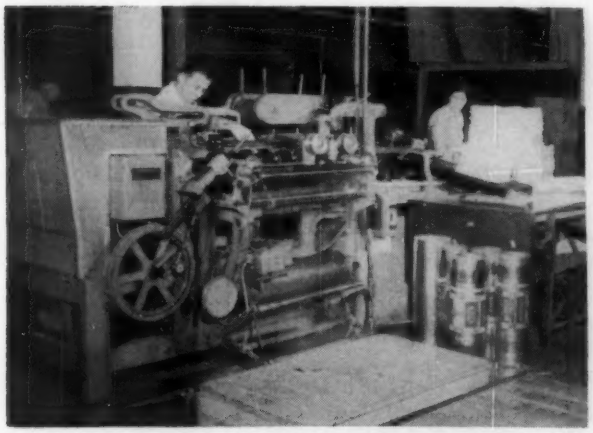


FOLDED SHEETS are taken from the truck and placed on a conveyor belt in stacks of about a dozen at a time. Box (arrow) contains a sprinkler that sprays the sheets with cold water when the belt moves.



SPRINKLED SHEETS move along the conveyor belt to two steam presses where they are pressed automatically. The girl inspects the sheets for correct folding and rearranges any sheets out of place.

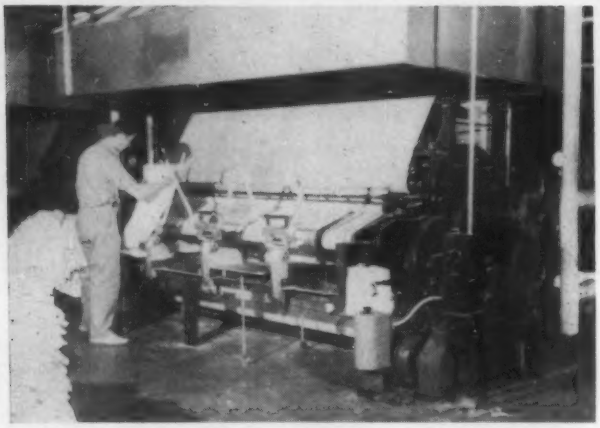
PRESSED SHEETS are removed from the conveyor belt manually and are moved along other conveyor belts to girls at work stations, who place the sheets in U-boards bearing the Stevens tradenames.



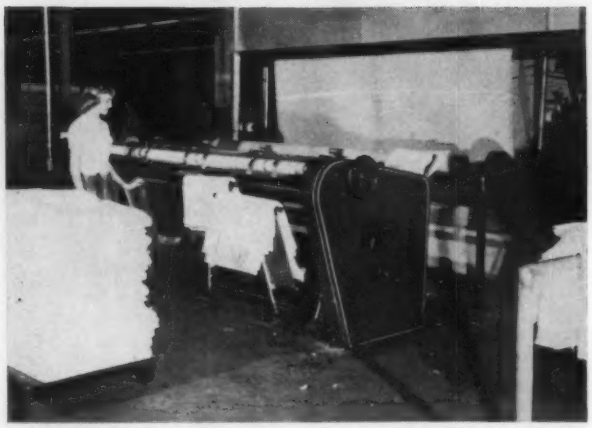
SHEET PACKAGING is fully automatic on two Hayssen automatic wrapping machines equipped with an electric eye so that the Stevens' designs on the Vitafilm are accurately positioned.

TRICOT SHEETS and pillowcases are hand-packaged in knitting-box-type transparent acetate cylinders. The sheets are packaged in pairs in two sizes for twin or full-size beds.

How Pillowcases Are Packaged



PILLOWCASES are delivered in bulk form from the sewing room to two American Laundry Machinery Co. mangles, each with a capacity for handling four pillowcases at once.

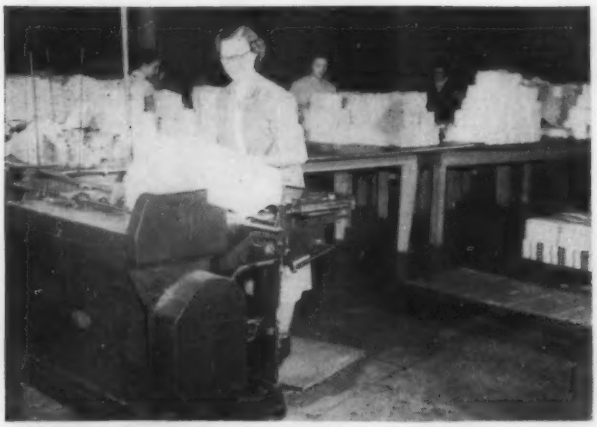


IRONED PILLOWCASES are automatically counted and stacked without handling on two American Laundry Stackrite machines as they come from the mangles. Capacity is eight lines of pillowcases.

PILLOWCASE FOLDING is another automatic operation. There are three machines—two American Laundry and one Economy Metal Stamping Co. models. There's a girl operator for each one.

AUTOMATIC WRAPPING with Vitafilm (arrow) occurs again on pillowcases. The machine is another Hayssen model and is used exclusively for pillowcases. The pillowcase package is 5½x9 ins.

How Diapers Are Packaged



DIAPER PACKAGING is the simplest form of packaging at Utica & Mohawk. They're folded here on one of three American Laundry machines. Folding is a faster operation than folding sheets or pillowcases.

SEMIAUTOMATIC WRAPPING of diapers is done 6 or 12 to a package. The 6x9-in. package is wrapped automatically and heat-sealed on top. The other two heat-sealing operations are manual.

Saved per Year— 32,000 Lbs. of CARPET STOCK

- **Comparative tests between 60-in. and 78¾-in. cards show that 32,000 lbs. of stock is saved on fly alone**

- **Spinning tests show an increase in average weight and an increase in strength from Duesberg-Bosson roving**

By THOMAS B. WINSTON, Assistant Editor, TEXTILE WORLD

With two sets of 78.75-in. Duesberg-Bosson cards in place, a Philadelphia carpet-yarn mill made comparative tests with its older 60-in. cards. The mill spins 1- and 1½-run yarn from a blend of good carpet stock.

The tests were made with a roving delivery of over 200 lbs. per hr.; but since the test, roving delivery has been cut to 173 lbs. per hr., which is below the capacity of the cards.

Fly from the big cards, converted to the same basis, was over 48% below the 60-in. cards; and, based on fly alone, yearly saving of stock is running to 32,000 lbs.

In the spinning room, tests on frames set up the same way showed an increase in average weight of over 6% and an increase in average breaking strength of almost 3%. Low break was up 3.93% and high break increased 7.57%.

HOW OLD 60-IN. CARDS COMPARE TO 78¾-IN. CARDS

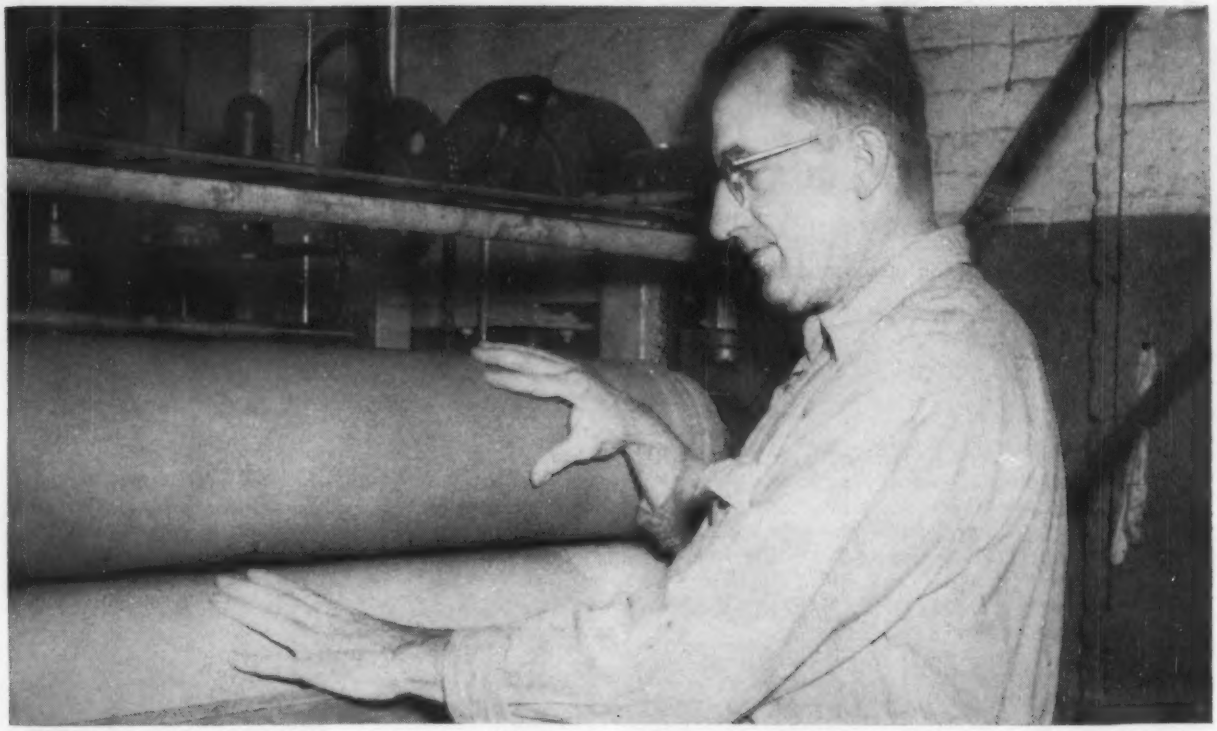
Card-Room Performance

	Old 60-in. card	New 78¾-in. card	Comparison
Color	2576	2576	Same
Blend	11233-H	11233-H	Same
Spool-drum dia.	7.6250 ins.	7.6875 ins.	Same
Circumference (delivery surface)	24.5 ins. fluted	24.3 ins. level	Same
Width of card	60 ins.	78.75 ins.	31.25% increase
Number of ends	80	120	50%
* Speed of spool drum	58 rpm.	58 rpm.	Same
Grain weight (50 yds.)	250 grains	250 grains	Same
100% roving delivery	135.33 lbs. per hr.	201.34 lbs. per hr.	48.77% increase
Fly Waste Difference			
Lbs. fly recovered	327.5	237.0	
Net hours checked	30	30	Same
Lbs. fly per hr.	10.916	7.90	
Fly converted to same basis	16.239	7.90	48.64% decrease
Yearly saving of stock (based on fly alone)	80 hrs. x 8 lbs. x 50 wks. = 32,000 lbs.		

* Since this test was made, the spool-drum speed has been cut to 50 rpm., with a roving delivery of 173 lbs. per hr.

Spinning-Room Performance

	With roving from old 60-in. card	With roving from 78¾-in. card	Comparison
Frame make	Whitin	Whitin	Same
Ends on frame	120	120	Same
Speed of front roll	176 rpm.	176 rpm.	Same
Delivery of front roll	1,152 yds. per min.	1,152 yds. per min.	Same
Production gear	22	22	Same
Average Weight Difference			
Grain weight (50 yds.)	199 grains	199 grains	Same
Low (light)	176 grains	190 grains	
High (heavy)	200 grains	208 grains	
Average	188 grains	199.70 grains	6.22% better
Average Strength Difference			
No. ends weighted (single)	20	20	Same
No. ends broken (single)	100	100	Same
Low break	1.65 (lbs. pull)	1.715 (lbs. pull)	3.93% better
High break	1.98	2.13	7.57% better
Average	1.84	1.89	2.71% better



RUBBER ROLLS will last longer and give better service if they are selected and used properly, inspected daily for damage, and maintained as they should be.

How To Get the Most out of Rubber FINISHING ROLLS

Rubber rolls will give better service if you pay close attention to minor faults as they develop. Most-common faults to be avoided are—

- **Overloading**
- **Improper storage**

By DAVE KUNIHOLM, Rodney Hunt Machine Co.

MORE THAN HALF THE RUBBER ROLLS returned for re-covering could have given far more service if they had received proper care. There are two major principles that management should observe:

1. Buy good rolls, properly engineered for the work they are to do.
2. Be sure that the rolls are properly maintained.

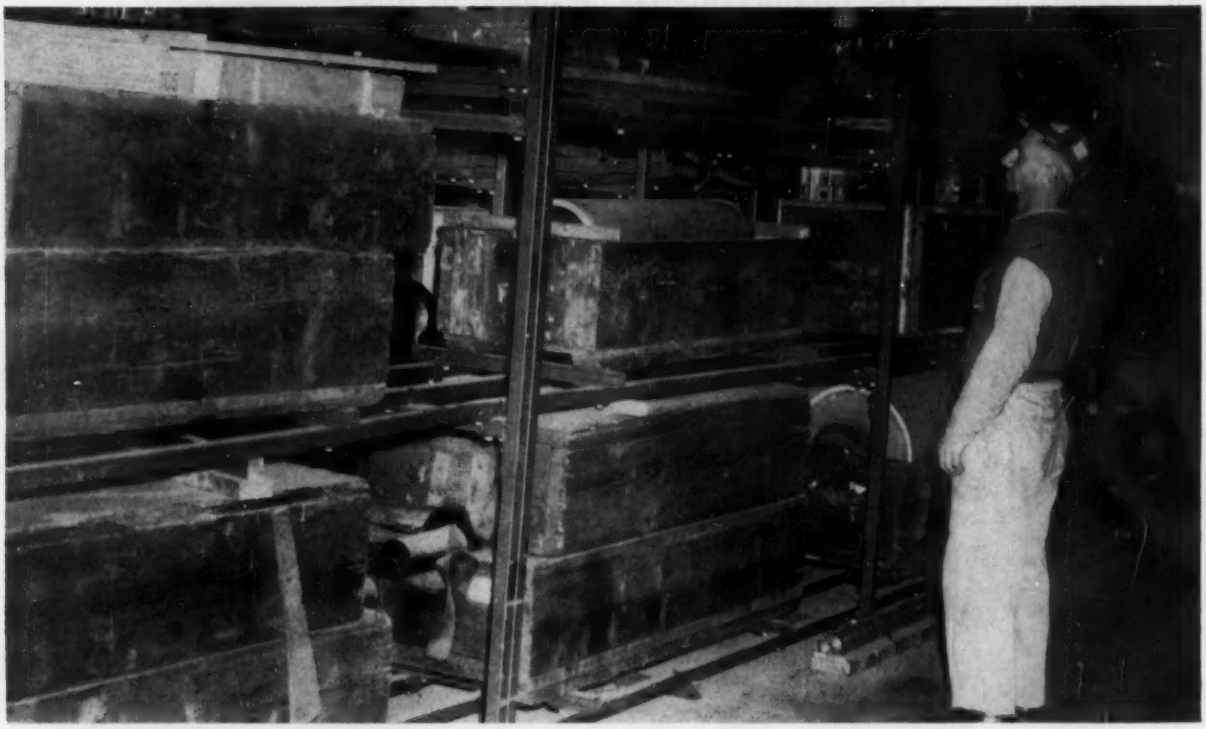
How To Care for Rolls in Use

Soft rolls commonly need more attention than hard rolls. The extra attention is justified because soft rolls carry more rubber relative to size and therefore cost more money.

If it is practical to do so, arrange to have the rolls up to working temperature before materials are in process. Rubber is softer when warm and harder when cold, and properly made rolls are engineered to work at a certain temperature. It is a benefit if they can be brought to the proper temperature before they are under pressure.

Inspect rolls daily for punctures, scratches, and cuts. It is best to avoid attempting repairs with cements and self-vulcanizing rubber. If the damage is too severe to be corrected by regrinding, a crude repair is likely to damage the goods in process. Sometimes an experienced roll manufacturer can make repairs or advise on how a repair can be made. Sometimes only regrinding will help; and if the damage is deep, re-covering is needed.

In service, every particle of rubber in a roll covering is deformed at the nip, and deformity is greatest at the surface. Recovery is rapid and complete, assuming the roll is well made and suited to the work. Eventually,



WHEN ROLLS ARE STORED, they should be placed in their shipping boxes, which have supports for the shafts, covered with paper, and rotated halfway around once a week.

however, permanent fatigue sets in at the surface and is indicated by hairline cracks. These cracks resemble the effect of crystallization in metal. Weekly inspection will disclose the tiny cracks. Neglected, they will become corrugations or deep cracks. If reground at once, the roll will present a fresh, resilient surface to the work.

Excessive passage of textiles in rope form through the same parts of the roll causes excessive wear of the roll surface. Neglected, it forms grooves or channels. A moving pinrack should be installed or the stationary pinrack should be moved daily or weekly.

Overloading Costs Money

Avoid overloading rolls; it brings fatigue to the rubber prematurely. Overloading rarely gains for production what it costs for replacement. If more pressure is required than present rolls are engineered to give, new and larger rolls are needed and will pay off in longer life and better production.

Wear through the middle of a roll is often the result of steady overloading, even of a relatively small degree. It is impossible to compensate for the wear by increasing the pressure; such additional pressure will split the ends of the roll covering. Two courses are possible: (1) If pressure can be reduced to normal, regrind the roll and restore to service. (2) If overloading must continue, regrind 1 in. of the ends of the roll and bevel down $\frac{1}{16}$ to $\frac{1}{8}$ in. to provide a rounded end. This bevel will help prevent end splitting under overload.

Side weighting or pressure on the rolls must be uniform at both ends, or the covering will wear unevenly and eventually crack at the end bearing the excess pressure.

Lubrication Can Cause Trouble

Bearings should be carefully lubricated to avoid overheating. Otherwise, heat is transmitted to the shaft and the end of the roll and may cause splitting or mushrooming of the covering. However, provide adequate lubrication only; too much is as harmful as too little.

Do not permit rubber rolls to become wet with lubricating oils or other forms of petroleum. Kerosene is notably destructive; if it should be spilled on a roll, clean the roll immediately with alcohol or ethyl-free gasoline. (Gasoline is a petroleum derivitive, but it cleans the oil off and then evaporates so quickly as to be harmless.)

If rolls are frequently wet with oils, wash once a week with water and strong soap; then rinse well.

Release all pressure from rolls when they are idle, and remove from contact with the mating roll; otherwise, they will acquire a set, or flat spot, at the standing nip. If a set occurs, revolve the roll for 1 to 2 hrs. in hot water.

This treatment will sometimes repair the damage; otherwise, regrinding is required.

Avoid direct contact of rubber rolls with brass rolls. The brass provokes oxidizing of the rubber and may cause soiling of light fabrics. If possible, substitute a hard rubber roll or chromium-plated roll for the brass roll; if substitution is not possible, inspect the work frequently and clean the rubber roll when necessary.

When moving a roll by slings attached to the shafts, be extremely careful to prevent the chains from fouling the ends of the roll. The recommended method, if the rigging is available, is to use a broad belt sling around the middle of the roll. If chain or rope slings have to be used, protect the rubber at the ends of the rolls with blocks or covers to prevent contact with the chains or ropes.

It is advisable to keep records on rolls, showing date received, date in service, date of regrinds, etc. The records should be a veritable diary of each roll's service life.

How To Store Rolls

In moving a roll from the machine to storage, remember the recommendation already suggested, including the reference to keeping records. Rolls in storage should be supported on the shaft, never on the roll body or standing on end. One of the best

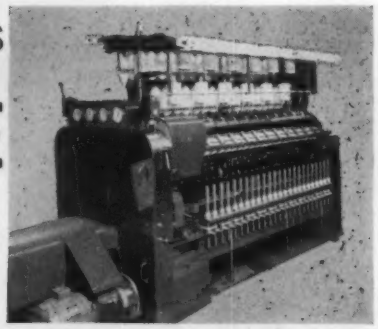
CONTINUED ON PAGE 198

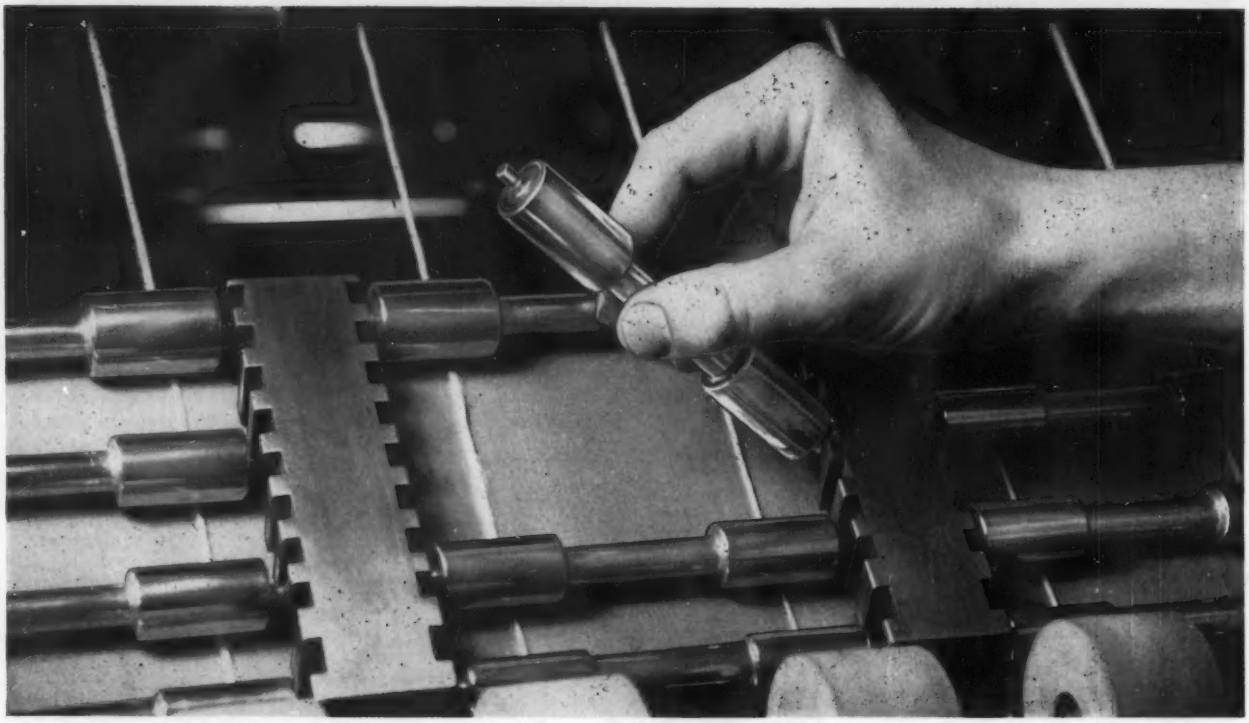
Your problem of low cost production may be solved by this

NEW SACM SPINNING FRAME

for worsted, synthetic or blended fibers

prepared on any system



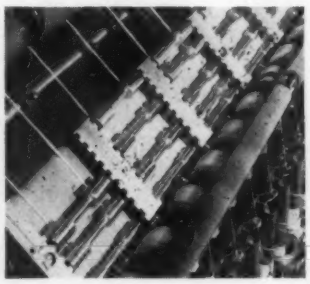


QUALITY CONTROL . . .

The cleanliness of the drafting area is the first thing that you will notice about the new SACM Spinning Frame. With the new weighting system there are no levers or weighting arms to collect lint above the drafting area. This straight line, single apron system has proven versatile and efficient for short and long staples. Higher drafts and spindle speeds are attainable on a wide variety of fibers from twisted or condensed rovings.

HIGHER PRODUCTION . . .

By loosening two screws, an apron can be removed and changed in seconds while the rest of the *frame keeps operating*. One wide apron is used for each two spindles.



OPEN VIEW . . .

A wide range of fiber control adjustments can be obtained. *No tools* are required to change the number, weight or relative positions of the top carrier rolls. May we send you our latest circular?

a. h.

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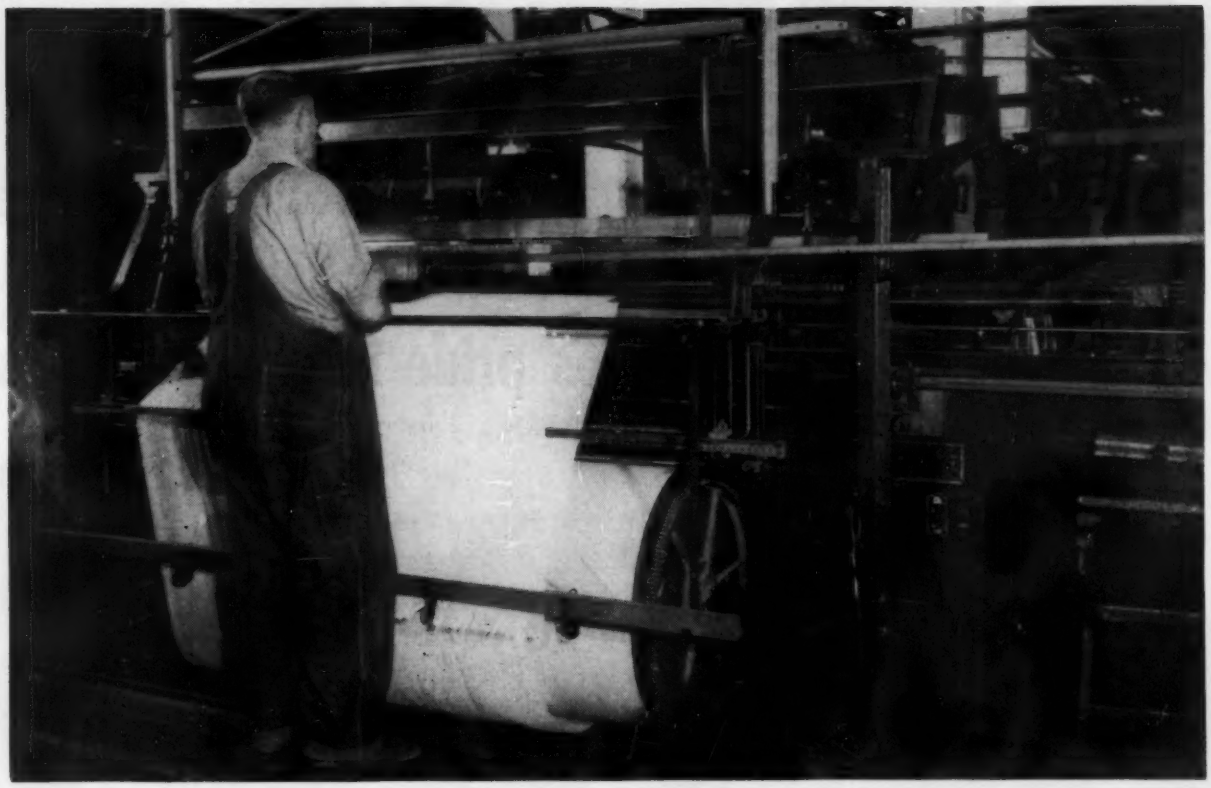


OPERATORS keep the machines clean and well oiled at Exposition Cotton Mills Co. That's why . . .

Maintenance Costs Are Low For DRAWING-IN MACHINES

All that's necessary to keep machines running is—

- **Clean and oil machines once each week**
- **Repair harnesses before they're reused**

By **RICHARD B. PRESSLEY,** Associate Editor, TEXTILE WORLD

After five years of drawing-in-machine operation, maintenance at Exposition Cotton Mills Co., Atlanta, Ga., doesn't amount to much in labor costs or parts costs. Broken needles are replaced more frequently than other parts, but they aren't broken often.

Exposition has two drawing-in machines. One is a six-harness model for loom beams up to 60 ins. wide. The machine speed is 190 ends per minute. An average of eight warps are drawn each 8-hr. shift, and a production of 37,000 ends per shift is possible.

The other machine draws 2 to 22 harnesses on beams up to 72 ins. wide The speed is 145 ends per minute. An average of 7½ warps are drawn each shift, and 35,000 ends can be drawn per shift.

The number of harnesses for cloth patterns at Exposition ranges from 2 to 22, but most styles of cloth have from 6 to 12 harnesses.

The small machine is five years old; the large one is 4½ years old.

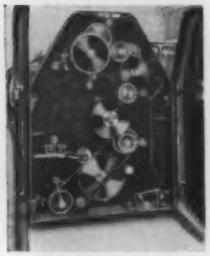
Exposition weaves all types of plain-weave fabrics, fancy cam-harness fabrics, and dobby materials. Warp yarns range from 14s to 26s. For examples, sheetings and twills are 14s, gabardines are 22s, and corduroys are 26s.

The trend at Exposition is to finer yarn numbers. Coarse and fine yarns are drawn alternately without damage to machine parts.

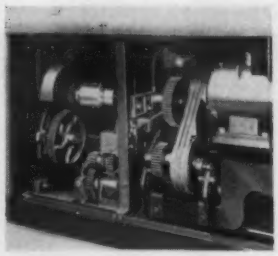
Keep Machines Clean and Oiled

Constant care in cleaning and oiling keeps the machines in good mechanical condition and eliminates parts wear. The machine beds are sprayed with grease once each day. The kero-

CONTINUED ON PAGE 200

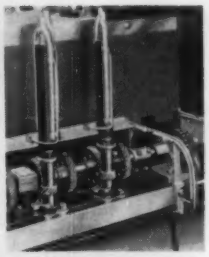


The simplified gearing end emphasizes the efficiency of design and operation. When this door or any other cover is opened, the machine stops and service lights go on.



The silent main drive and gearing is compact and accessible when the rear door is opened.

Chain drive to bobbin shaft and helical gear drive to bobbins diminishes noise.



You'll take pride in her work, when she takes pride in her machines

PLATTS MS·2 Roving Frame

The most beautiful roving frame in the world from the standpoint of efficiency, production, basic design, cost and appearance is now on display at our Charlotte showrooms. It is built in all standard lengths and for bobbins up to 12" x 6½". May we send you more information or better yet arrange for you to see the MS·2 in operation?

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Statistical QUALITY CONTROL *In a Filament Weaving Plant*

To set up statistical methods for controlling quality in a filament weaving plant—

- **The first step is to hire a man who knows statistical quality control or train one.**
- **Then develop criteria for accepting yarn shipments. Standardize each process and put the standards in writing. Keep charts of the assignable causes of trouble.**

By ERNEST R. BECHNER

A GOOD QUALITY-CONTROL PROGRAM will pinpoint assignable causes of trouble and allow you to concentrate on the abnormalities. It will establish tolerances that are reasonable, and then you can use these tolerances to buy yarns that will make better cloth. Such a program will enable you to predict, with reasonable accuracy and early in the manufacturing process, what percent of seconds to expect in the finished product.

With such a program in operation, there is less lost production caused by someone fouling up the works. Standard procedures will be in writing, and necessary deviations will be made under carefully observed, controlled, and planned conditions. And the results of experiments can be evaluated accurately and quickly.

Where To Begin

The program outlined here is suited to plants running a few yarn lots. Plants with many yarn lots and styles can start the program on several of the largest lots.

To begin with, don't confuse quality control in synthetics weaving with similar programs in cotton and wool. You don't make the yarn; you convert it to cloth.

Hire somebody who has experience in statistical quality control. Next best, select a young man in your organization, buy him a copy of *Statistical Quality Control*, by E. L. Grant (McGraw-Hill), and start him studying. If he works hard, he should be ready to tackle the program within a year.

A valuable addition to his training is *Quality Control Handbook*, by J. M. Juran (McGraw-Hill). And there are, of course, many other books and sources of information on quality control.

Five Steps To Control

1. Develop criteria for accepting or rejecting yarn shipments and for deciding which yarns to buy (by lot and manufacturer). This step is basic. The entire program is dependent on this one point.

To establish criteria, you need to know average yards per pound (usually, there is not much leeway), percent elongation, tensile strength in grams per denier, turns per inch, and tendency to kink.

2. Follow the same testing procedure to determine exactly what happens to the yarn in each process. Then you will have a yardstick for evaluating techniques in each manufacturing step. This information can be presented dramatically to management by converting frequency distributions into histograms: superimpose one technique over another or one process over another.

3. With the basic physical characteristics for incoming yarn from each lot established, standardize the process and put the standard in writing. Make accurate break counts, and express the results as breaks per pound or breaks per 100 lbs.

4. Standardize and bring into control one manufacturing step at a time, beginning with the first process in the plant. Repeat Steps 1 and 3 on every yarn ready to go to the next department.

5. Correlate decrease in strength, stretch, and increase in breaks per pound with percent seconds. Then you can decide which yarns to buy, and you can predict what percent seconds you will get on yarn lots that behave like the ones you tested.

You have to depend on random sampling to get the required data.

As an example, assume that you want a probability of 0.95 with 0.05 random sampling error; that is to say, in 95 cases out of 100, you will not be more than ± 5% away from the process average.

To set up the testing proceedure, make a pilot run, according to the ASTM manual, to determine how much testing to do for each characteristic. On the pilot-run results, use this formula to determine how much testing to do:

$$n = \frac{t^2 V^2}{E^2}$$

where n = number of tests to be made
t = factor for 0.95 probability (1.96)
V = coefficient of variation
E = allowable random sampling error

If the above formula indicates 10 tests, for instance, it is better to make two each off of five pieces, instead of five tests each off of two pieces. Using more pieces gives a better representative sampling.

Basic Yarn Characteristics

Accumulate the required number of pieces from cases of yarn as opened, and label them with the case number. Hold them in the laboratory until the yarn reaches equilibrium at standard conditions (65% r.h., 70° F.); then proceed to test.

The required number of tests for yards per pound will be relatively few; manufacturers control this characteristic very well.

Tests for turns per inch in producer's twist are an exception to the given formula if the yarn is to be twisted. The average to a tenth of one turn is close enough. Tests for turns in voile will probably require a few more than crepe.

Tensile strength in grams per denier and percent elongation will require

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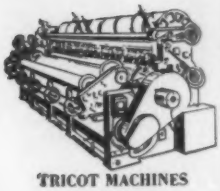
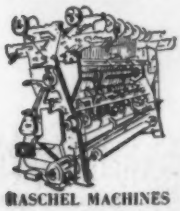
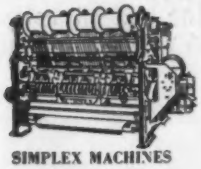
The Reiner Line:



TRICOT MACHINES



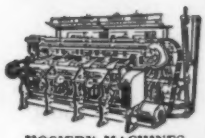
RASCHEL MACHINES



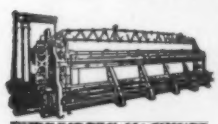
SIMPLEX MACHINES

WARPERS

CREELS



HOSIERY MACHINES



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Ready spare part service available for all Reiner equipment.

NOW OPERATING in LEADING MILLS

earning a fine record for rugged, fast, dependable and economical 'round the clock performance.

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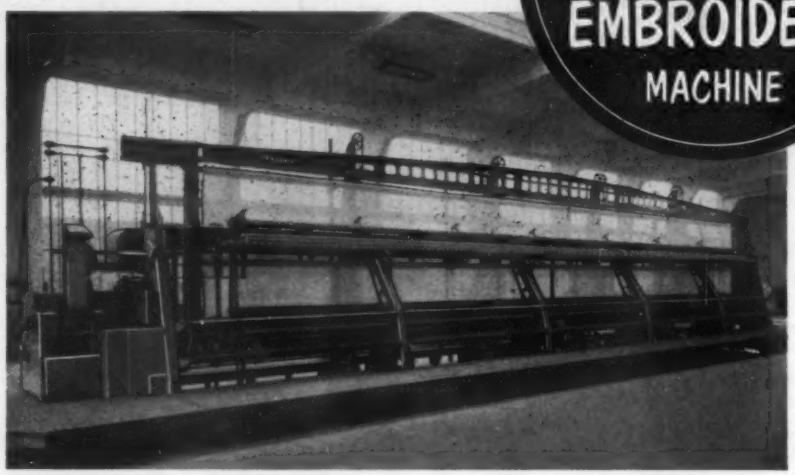
10 and 15 yard AUTOMATIC SHUTTLE EMBROIDERY MACHINE



Reiner are pioneers in the embroidery field. This newly designed machine is the result of over half a century of work among and with embroidery men. More Reiner machines of Reiner-Vomag fame are running today than all other makes combined.

The latest streamlined Reiner embroidery unit, available in both 10 and 15 yards, is a faster and improved version of previous Reiner-Vomag models.

We also offer multihead automatic embroidery units—suitable for small runs.

Complete details upon request.

FEATURES:

- Stitching width 72/4
- Full 24" span, complete with Automatic Attachment suitable for standard Vomag type punching cards.
- 4/4 Repeat.
- Automatic spanning.
- Large package of goods roller.
- Machine is liberally provided with ball bearings.
- All shafts provided with oilite bushings
- All cams are hardened.
- Steel bands are guarded.
- Extra heavy shuttle shaft.
- Separate upper and lower shuttle drives, permitting unobstructed access to cloth.
- Front and rear shipper rods over the entire length of the machine.
- Frame centrally actuated for smoother motion.
- Thread guide box cams for more positive action.
- V-belt drive.
- Separate base plate for advance preparation of foundation.

ROBERT REINER INCORPORATED

10 MINUTES FROM TIMES SQUARE

Take Bus Nos. 61 or 67, from Platform No. 60, Port Authority Bus Terminal, 41st Street and 8th Avenue, New York City. Get off at Pleasant Avenue, Weehawken, New Jersey. From there turn left and walk through the underpass up to Gregory Avenue . . . TELEPHONE: UNION 7-0502, 0503, 0504, and 0505. From New York City call LONGACRE 4-6882.

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considerably more tests because of inherent variability in these characteristics (particularly for nylon).

Measuring the tendency of yarn to kink is still in its infancy, but the characteristic is important. After the yarn is ready for weaving, pull off about a yard of yarn without tensioning, bring both ends together, and count the complete turns that the yarn makes on itself. Quite a few of these observations are necessary to get a reasonable average. This method sounds crude, but it is the only method known.

The tendency to kink is important: many yarn lots are pulled out of production after several thousands of yards of seconds are caused by kinky filling or snarls. Of course, seconds from these defects are not caused solely by the yarn; the very best yarn will kink and snarl if it is not processed properly. But other yarns will kink and snarl regardless of how they are processed.

As the daily schedule of testing progresses, plot these results on Shewhart control charts for X and *R*, or X and sigma. These symbols represent basic statistical concepts that can be found in any quality-control manual. With the charts, you can quickly evaluate your progress.

Two things to avoid: don't compute control limits on fewer than 25 subgroups or until the daily averages have settled down to a fair consistency. Assignable causes are present when a process is out of control, and they must be found and eliminated. If you fail, all is lost.

Standardize the Process

At this point, you know the basic characteristics of the yarn. Next, you have to know exactly how the yarn will be handled and that it all will be handled in exactly that way. In other words, you must standardize the process in detail, put the standard in writing, and follow the standard procedure.

Absolutely no deviation from this procedure should be allowed without written instructions. This prohibition is not intended to make it difficult for the department head or foreman to run his department intelligently; it is intended to assure the quality-control department that the yarn will be processed in an exact, known manner until further notice.

So the first step is to decide exactly how each yarn lot will be run. Write it down, and make copies for the plant superintendent, the department head, second hand, and quality-control man.

Each time a process technique is changed, the control lines on your charts have to be terminated, and the lines cannot be re-established for the next 25 subgroups. This requirement is the most painful part of the entire program because it cuts across traditional prerogatives of many people. Also, no one wants to go out on a limb to write down exactly the technique to be used. But the first writing of the specifications is just a starting point; they must be rewritten whenever the technique is improved.

Yarn Breaks

You are now ready to consider your most expensive item—yarn breaks. Yarn breaks are important: they govern tension, speed, temperature, humidity, operator work assignments, piece-work rates, cost per pound, percent seconds, profit or loss, and a host of other things.

Set up a system of getting yarn-break data, noting all the particular conditions that are standardized and written. Then breaks will mean something; you will have a basis for comparison.

At first, the yarn-break studies will be made by the direct method of staying with the operator and recording breaks, doffs, and replace-supply until the approximate weight of yarn going into the process equals the approximate weight of yarn coming out.

Once these breaks have been established, the rest of them can be handled by the ratio-delay method. Regular department workers can be trained easily to make ratio-delay checks. The quality-control department can analyze these results (using the binominal theorem) and tell whether or not the checks were made properly and the degree of precision achieved. Later, as the breaks become in control, the frequency of break counts can be reduced.

The Next Process

After the preceding process has been standardized, in-control yarn enters the next process. You are now ready for the next step. Proceed to standardize this process and to write the specifications.

Then start testing for physical characteristics and breaks, and plot them on control charts. When this yarn has reached a state of control (strength and stretch), proceed to record yarn breaks. After yarn breaks are in control and this yarn has entered the next process, you are ready to tackle that process.

At this point, another characteristic must be mentioned: whenever a finish is applied to the yarn in any process, the application must be made under carefully controlled conditions. This requirement is in specific reference to soaking, slashing, twist setting, antistatic oil, etc. The quality-control man must devise some means of checking to see that these applications are made exactly as written in the specifications.

Check Weaving Conditions

In weaving, there are several points that are prerequisites to quality:

1. A system of selecting and using the best grade and brand of supplies
2. A planned orderly program of maintenance
3. Standard settings, so far as possible
4. Gauge fixing, not trial and error or rule of thumb
5. Temperature and humidity control, with refrigeration

With the above prerequisites carried out, you are ready for the next step. Detailed weaving studies to determine workloads and standard-stops-per-producing loomhour must be made. These studies should be made by the direct method to determine breaks and stops by styles and to compare weaver sets and fixer sections.

Once these standards have been established, further weaving studies should be made along ratio-delay principles. Plot the rate of stops on control charts, and investigate each out-of-control point to eliminate that trouble.

Since fixers and weavers are individuals, no two of them do their work exactly alike. So use separate control charts for each weaver set and separate control charts for each fixer section. Once the weaving operation is in control, you are ready for cloth grading.

Assuming that cloth grading is done on the point system provides a common ground for understanding.

Grading from one plant to another may not be exactly alike; it seldom is, but grading within the plant must be consistent. It is the responsibility of the cloth-room overseer to see that all inspectors are grading alike.

Next, the grading standards must be put in writing and a copy given to the weave room. People must know what is expected of them.

Control Charts for Seconds

Nobody runs a plant without seconds. Some second-grade cloth is inevitable; but knowing this, you don't stop trying to hold seconds to a minimum. Also, it is unreasonable to expect seconds to stay exactly at, say, 2%. There is a certain normal amount of variation below and above the average. However, when seconds

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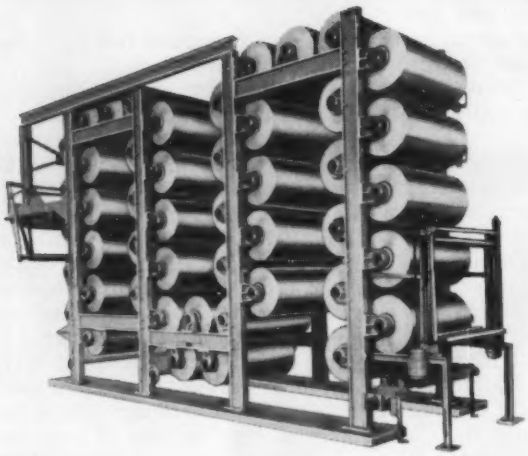
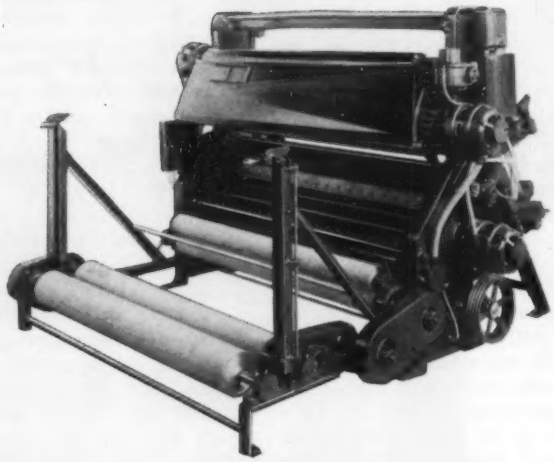
FINISHING

number six of a series depicting

MORE AND BETTER TEXTILE PRODUCTION WITH HYATTS





(Above, left.) Morrison Dry Cans equipped with a Hyatt Hy-Load Bearing at every shaft end position.

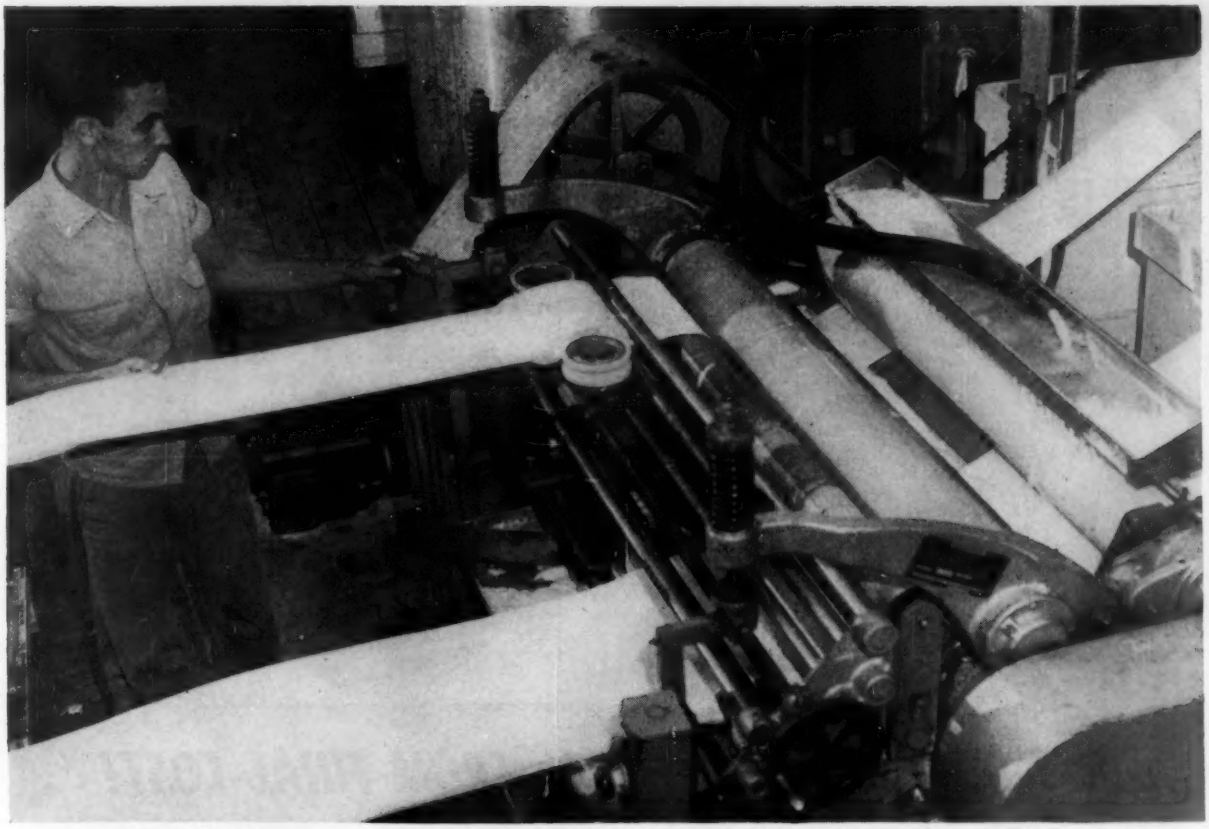
(Above, right.) Hermas Model AV Shear in which several sizes of Hyatt Hy-Load Bearings are employed on the revolvers.

Heat, humidity and high stress can play havoc with ordinary bearings in textile finishing equipment. That's why leading manufacturers of dry cans, washers and many other finishing machines depend on Hyatt Roller Bearings engineered to withstand such rigorous conditions.

Moreover, finishing is another critical stage where the slightest oil stain can quickly convert a profitable "first" into a costly "second." Hyatt housings are securely sealed to prevent lubricant leakage—another reason why you're always sure of *more and better textile production with Hyatts!* For further details on the profitable application of Hyatt Roller Bearings to textile machinery, request Bulletin T-54 from Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

STRAIGHT BARREL TAPER



RESIN OR OTHER FINISHES may be applied to tubular knit goods on a pad designed to process the goods without tension.

How To Finish Tubular KNIT GOODS

● Tubular knit goods are dyed, printed, and finished by methods similar to those used on woven fabrics; but because knit goods distort easily under tension, special machines and techniques are necessary to produce a satisfactory fabric

TODAY a wide range of tubular knit fabrics of wool, wool and synthetic blends, and blends of synthetics is produced. A first step in finishing fabrics high in wool content is the fulling process. Prior to loading into the fulling machines, the cloth is wet out in a mangle with a solution of soap, or a detergent, plus soda ash and tetrasodium pyrophosphate (TSPP). The goods are loaded in the fulling mill and run until shrinkage has reached a predetermined point.

The shrinkage is checked with a measuring wheel, and the goods are removed from the fulling mill before complete fulling is obtained. Allowance has to be made for further fulling that will occur in the dyeing operation.

After fulling, the goods are scoured for 15 to 20 mins. at 110° F. and then thoroughly rinsed in soft water at 100° F. before going to the dyehouse. The goods should be neutral at this point, and frequent checks on the fat and soap content are made to assure satisfactory dyeing. Alcohol and ether extracts should not exceed ¾%.

Based on a paper given by R. C. Geering, Princeton Knitting Mills, at the Philadelphia Symposium AATCC.

Synthetics Are Preset

Blends low in wool or those composed of synthetics are loaded directly into the dyebox from the gray room, except where thermoplastic fibers predominate. It has been found that Orlon, Dacron, and nylon benefit by the relaxing and shrinking that occur in a presetting treatment. Presetting will vary with the fabric, fiber, and construction; but in general it is accomplished by passing the goods through boiling water over a spreader. A cold-water spray completes the setting process. Some acrylic fibers are steamed over a Tube-Tex calendar to get a similar effect.

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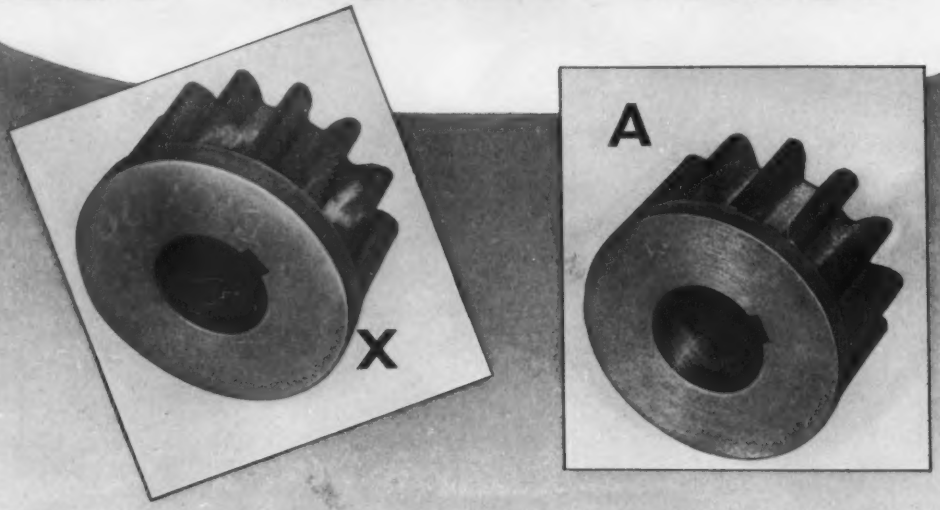
A TRUE STORY — NO. 1 OF A SERIES

WHICH IS THE BEST "MONEY VALUE"?



FIRST COST IS A LONG WAY FROM FINAL COST!

LET'S EXAMINE THE FACTS

Gear X, while costing considerably less than Gear A, is intended to do the same job in a Saco-Lowell 90 Pattern Picker. They are the Drop Shaft Gears designed to drive the entire calender section of the picker. This gear takes the entire load *under shock* when starting a new lap.

NOW, LET'S EXAMINE THE GEARS !

Gear X is a very cheap imitation of the original part. It is nothing more than gray cast iron with a Brinell Hardness of 170. Saco-Lowell Gear A is made from the original design, using the proper pattern and made of *Malleable Cast Iron* with a Brinell Hardness of 100. It should be pointed out that a higher Brinell denotes a more brittle, easily broken casting.

IN USE, WHAT HAPPENS ?

Remember, the 13 tooth drop shaft gear is in motion at all times and is jammed into mesh with the 80 tooth gear to drive the entire calender section. Gear X cannot possibly withstand the shock and impact of meshing and will soon chip and knock out teeth. Gear A, being made of malleable iron, will stand up under this shock load. Also, malleable iron will mold itself to match the driving gear, and this prevents wearing out the expensive 80 tooth gear. *Malleable Gear A is a genuine Saco-Lowell part, a fitting reminder that the initial cost is not the important factor in the long run.*

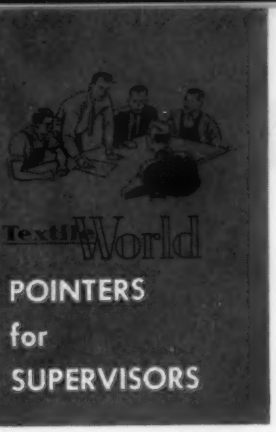
IT PAYS TO USE GENUINE SACO-LOWELL REPLACEMENT PARTS — THEY'RE GUARANTEED.

SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N. C.

SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA



Suppose you ask an employee to take on a new assignment and he says, "I don't think I can do that job." Does he actually mean that he can't—or that he's afraid to? What are the real thoughts behind the words your employees use? If you don't know, you'll find it useful to learn—

How To Read Their Minds

By **AUREN URIS,** Human Relations Division, Research Institute of America

EVERY SUPERVISOR finds out sooner or later that his employees sometimes say or do one thing but mean something else. Every successful supervisor learns to do a certain amount of mind-reading to get to the real meaning behind the words and actions.

There's a great advantage in knowing what your people are thinking. It helps you tell in advance when trouble is brewing. It helps you treat sore spots before they become serious centers of infection.

And the supervisor who can read minds can go a step further. He can predict what will develop tomorrow, next week, next month. In short, he can spot significant trends in his department and act accordingly.

The big hazard in the mind-reading business lies in misreading the signs. You've seen it happen to some supervisors: they see something happen on the job; an employee does or says something. The supervisor is "sure" he knows what it means. But he's overlooked other possibilities. (See table below.)

Fortunately, it's possible to avoid wrong guesses. You do it by looking for specific clues.

In general, there are four things to watch for:

I. Relations Among Your People

If you know the answers to these questions, for example, you're in a good position to tell what your people are really thinking:

- Who likes to work with whom? (And which of your people steer clear of joint assignment?)
- Who is often seen together with whom? (And who of your group avoid one another?)
- Who makes suggestions to whom? (And who takes the attitude, "Let him find out for himself"?)
- Who accepts suggestions from whom? (And who would "rather be wrong in his own way, than right in X's"?)
- Who is friendly with whom? (And who wouldn't touch whom with a ten-foot pole?)

Stumped by any of these questions? You can learn the answers by observing your people's actions on the work-scene.

II. Their Communications Patterns

"Best-informed person in town used to be the phone operator," those in the know will tell you.

Your position is similar to that of the telephone operator. You're in a spot to observe who generally takes his news to whom, who is often the last to hear, who seems to communicate with almost everybody. Such information is often all you need to see the shape of things to come.

In reading their minds through the communications patterns you observe in your group, questions like these can help you draw some helpful conclusions:

- Who usually talks to whom?
- Which people "aren't speaking"?
- Any decrease in the amount of conversation between you and individuals in your group? (That could mean

CONTINUED ON PAGE 218

WHAT'S ON THEIR MINDS?

Situation	Possible meaning	But may mean—
No complaints, gripes, or grievances	Smooth sailing ahead	Explosion brewing, or apathy
Eagerness to confer with supervisor	They like you, respect your knowledge	Sagging initiative
No questions asked	Everyone in agreement	Afraid to show ignorance, or doubt boss
Arguments among themselves	Friction and internal strife	Healthy exchange of ideas

POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES

. . . THE COMPLETE QUALITY LINE . . . POWELL VALVES . . . THE COMPLETE QUALITY LINE . . .

. . . THE COMPLETE QUALITY LINE . . . POWELL VALVES . . . THE COMPLETE QUALITY LINE . . .

Preferred for Precision and Performance

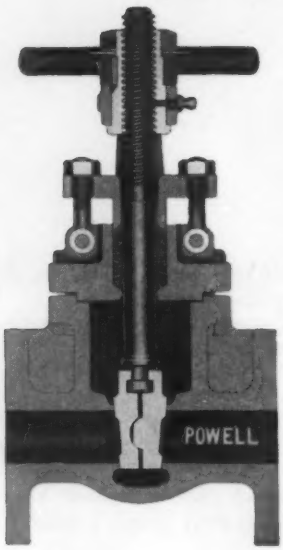


FIG. 2495 (Sectional)—Stainless Steel O. S. & Y. Gate Valve for 150 Pounds W. P. Double Wedge Disc is accurately guided to seat.

Powell Valves are the choice of engineers because they know every valve is precision made, meeting every specification—every time.

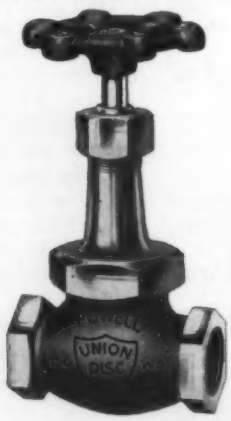
And there are other good reasons why engineers prefer Powell Valves—because Powell Valves are dependable . . . economical . . . and Powell has the COMPLETE quality line of valves.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our complete line, and help solve any flow control problem you may have.

The Wm. Powell Company
Cincinnati 22, Ohio . . . 109th year

FIG. 375—Bronze Gate Valve for 200 Pounds W. S. P.

FIG. 150—Bronze Vulcanized Composition Disc Globe Valve for 150 Pounds W. S. P.



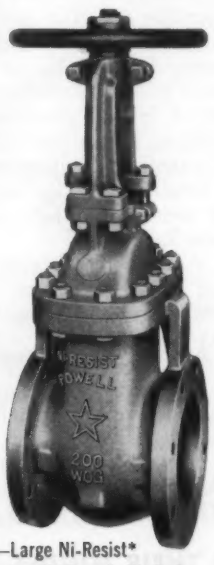


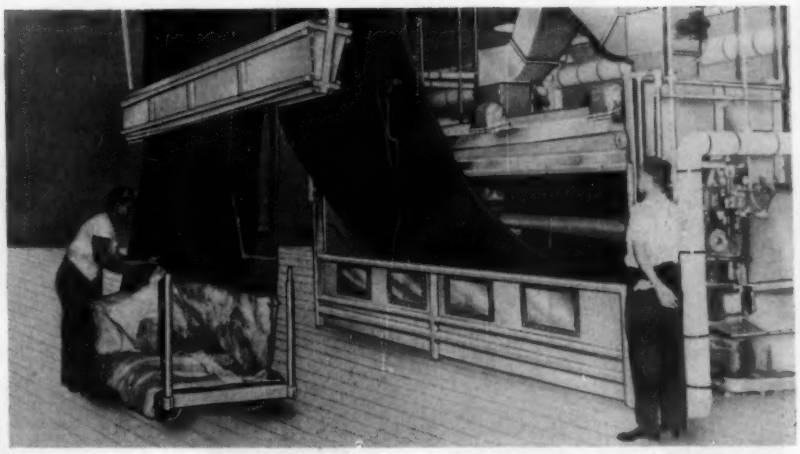
FIG. 2193—Large Ni-Resist* Gate Valve for 200 Pounds W. O. G.

*Trade-mark of The International Nickel Co.

POWELL VALVES

DO YOU WANT MORE INFORMATION? At the end of each item is a symbol consisting of the letter "T" followed by a number. If you wish additional facts about any item, circle the corresponding symbol on the Reader-Service post card, page 165, and mail the card to us.

Rug Kettle

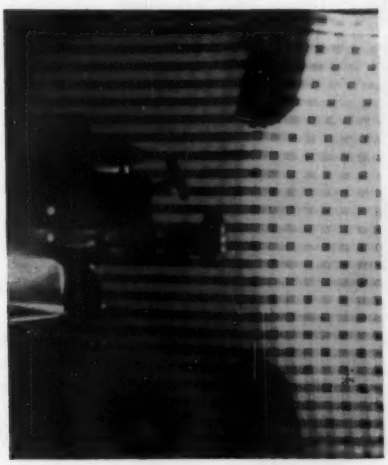


The new Fleet Line stainless-steel rug dye kettle, developed by Riggs & Lombard, Foot of Suffolk St., Lowell, Mass., has been in operation in one mill since last fall. Features: level dyeing, no shading from side to side, a fast dyeing operation, and low steam and water requirements. Only one rinsing bath is needed.

The machine is designed for cotton or synthetic rugs in open width, but the unit can also be used for rope dyeing. To solve the problem of level dyeing, two impellor pumps are used to induce a positive liquor flow. This flow keeps the open-width rug from partitioning off the liquor. There is a positive mixing of the dye, an even deposit of color on the rugs, and a constant temperature throughout the bath.

An electrically controlled stainless-steel guider with rubber-covered rolls allows a broad range of widths to be dyed without front-to-back partitions. The contours of the kettle present minimum resistance to the goods, and the tub can accommodate heavy rugs with respect to both liquor ratio and cloth weight.

Dye is mixed and brought to the boil in the mixing tank with a steam dart nozzle; then it is transferred to a distributing pipe for quick, even distribution. Salt is introduced in the same way. **(T-1)**



Mechanical Stroboscope

A mechanical stroboscope with an intense white light of 225,000 candlepower has been developed by Guider Roll & Service Co., Box 3747, Daytona Beach, Fla. The light was designed at the request of an engineer who needed to see the design-register and color of printing without stopping the printing machine.

The stroboscope is simply designed: there is a motor, a belt, and a control of the light speed to synchronize the light with the pattern. Anyone can operate it with a couple of minutes' instruction.

The light, which is called the Hetherington Mecho-Strobe, has a curved mirror to catch the rays from the sealed-beam unit. This mirror revolves at 10 to 70 revolutions per second, depending on the speed of the article. A tachometer can be added to give readings in revolutions per minute.

Practically any object can be strobed: objects that rotate or move back and forth, such as a shuttle; that travel continuously in one direction, such as fabric; and that have a repeated pattern or design.

Fast-moving cloth with small designs is relatively easy to strobe: cloth moving at 200 yds. a min. appears to be standing still. Price: $165. **(T-2)**

Spinnbau Cards

Type 500 card sets, suitable for wool and wool blends, staple rayon, cotton and cotton waste, shoddy, silk waste, and other fibers, are available from Spinnbau GmbH., Bremen/Farge, Germany. Features: drive by longitudinal shaft, infinite speed variation, increased carding surface, and increased protection against accidents. Standard working widths: 70, 73, and 80 ins. Diameters without clothing: cylinder, 56 ins.; doffer, 50 ins.; fancy, 13 ins.; workers, 9½ ins.; strippers, 3½ ins.

The most important combinations:

(1) Type 508: single doffer, two-cylinder set; fully automatic, with cards arranged behind each other; for carpet and blanket yarn and for cotton.

(2) Type 502: single-doffer, three-cylinder set; fully automatic, with cards arranged behind the other; for conventional three-cylinder work.

(3) Type 504: single-doffer, three-cylinder set; fully automatic, with two finisher cards in tandem; for all materials, especially long-staple wools and hair for felt and blanket yarn.

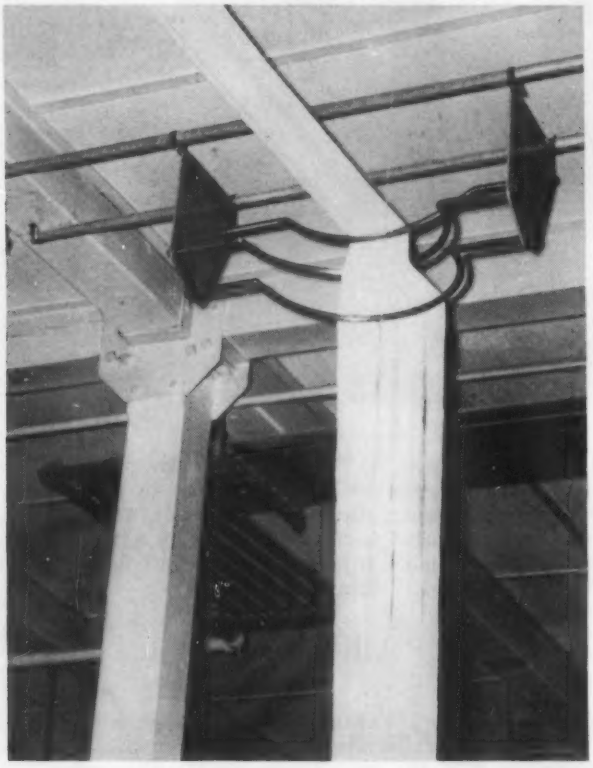
(4) Type 501: single-doffer, four-cylinder set; fully automatic; for all materials, particularly for stock difficult to open.

(5) Type 506: single-doffer, three-cylinder set; semiautomatic, with lap feed table at finisher; especially for mills on fine fabrics and small lots.

The cylinder is driven through gears; and through infinitely variable gears, a longitudinal shaft drives the feed train, the doffer, the comb, and conveyor or condenser through change wheels. Shaft speed is controlled by a handwheel or remote motor control arrangement.

Delivery speed can be gradually raised once the feed weight and web weight have been determined.

Workers are driven through change gearing from the doffer, and strippers and fancies are equipped with roller bearings. The fancy is driven from the cylinder through infinitely variable gearing. The complete drive is covered by safety guards, and no flat belts are used. **(T-3)**



Guide for Tow Creeling

Du Pont has developed a new tow guide. Improvements in tow processing result from the use of the guide between the carton and the feed section of the Turbo Stapler and Pacific Converter. The guide is available from Turbo Machine Co., Lansdale, Pa., or plans for making it are available from Du Pont.

The guide maintains the tow end in a fixed position as it it pulled from the carton and fed through a tensioning section to breakers or cutters. Benefits:

1. The number of times a carton is turned because of folds and twists is greatly reduced.
2. The need for periodically centering the tow in the creel tensioning section is practically eliminated. This device holds the tow in a fixed position regardless of the position of the tow in the carton.
3. Tow is uniformly converged to a compact bundle of parallel filaments.
4. In most cases, the use of guide fingers is not required.

The guide has three curved bars mounted in definite positions on a holder. One guide unit is required for use with the Turbo Stapler; the Pacific Converter requires four guides, which are supported on a frame that is tilted toward the converter with a slope of approximately 1 ft. in 17 ft. This slope permits the tow ends to pass over the individual guides without interference. The individual guides can be staggered for a double-layer (two tow ends over two tow ends) or a single-layer cut (four tow ends side by side).

With either machine the number of bars in the tensioning section is smaller than with straight bar guides. Three or four bars is enough.

The arcs of the first and second bars are positioned horizontally; the arc of the third bar is positioned vertically. However, if the tow has a tendency to work to one side of the first bar on the guide and stay there, the snub is reduced slightly by tilting the first bar downward through an arc of approximately 1 in. until the tow is centered in the unit. **(T-4)**

Flat Knitting Machine

An automatic flat knitting machine, developed by Dubied Machinery Co., 11-30 45th Road, Long Island City 1, N. Y., is suited for rib bottoms used on full-fashioned sweaters. The machine is a stitch-transfer machine, and stitches in the last few rows of the rib can be transferred to reduce the number of needles in operation and facilitate the topping operation.

Collars can be produced on the new machine with straight or scalloped edges, eight-lock patterns, or lace effects.

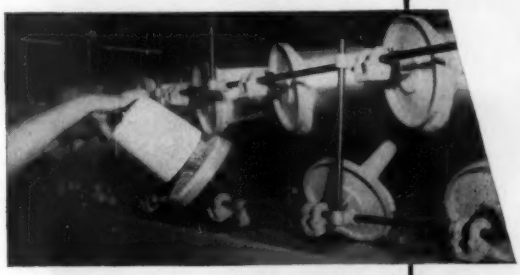
The DRL machine is built 60 ins. wide with up to 14 needles per inch. The machine is a double-lock machine and operates at 28 courses per minute. **(T-5)**

FOSTER-MUSCHAMP MODEL 66

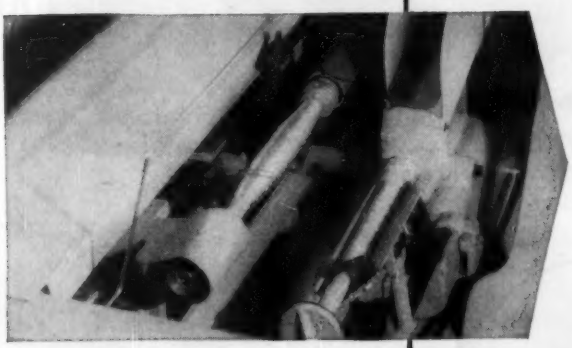
Automatic FILLING WINDER

(Made in Westfield, Mass., U.S.A.)

MODEL 66 FEATURES WHICH CONTRIBUTE TO LOW OPERATING COST



Magazine Creel for 4 lb. Cones



Automatic Donning and Doffing of Cones

Automatic Pinboarding

ALSO 15,000 R. P. M. SPINDLE SPEED

OPERATING COST

AS LOW AS ¼¢ PER LB. OF YARN QUILLED

For example, when equipped with magazine creel carrying 4 lb. cones, central bobbin hopper replenisher and automatic pinboarder or filling box stacker and when quilling 20,000 lbs. of 150 denier rayon in 40 hours the time required for operating labor is as follows:

	Time per Package	*Time for 20,000 lbs.*
Creeling in	.25 min.	1250. min.
Piecing up broken ends (1-½% breakage)	.11 min.	550. min.
Supplying pinboards	.0488 min.	244. min.
Other duties (5% tot. time)	.024 min.	120. min.
Personal time (5% tot. time)	.024 min.	120. min.
TOTAL TIME (1 operator 40 hrs.)	.4568 min.	2284. min.*

*Note there are 2400 minutes in 40 hours.

Standard hourly rate of 1 operator times 40 hrs. divided by 20,000 equals $ .0025.

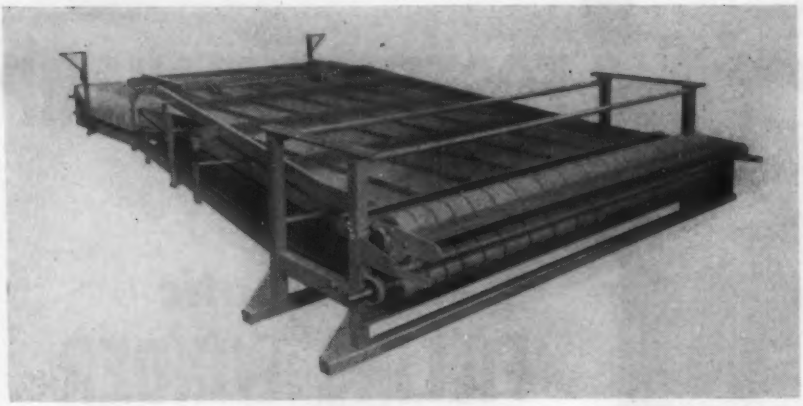
Compare these figures with your own operating costs or with those of any competing automatic winder and decide for yourself if the Model 66 is worth investigating. Then learn all about its 8 POINTS OF SUPERIORITY; send for FOSTER FACTS — Volume 4 — Number 5.

FOSTER MACHINE COMPANY

A Winder for Every Textile Purpose

Westfield, Massachusetts, U.S.A.

Southern Office—Johnston Bldg., Charlotte, N. C.



Offset Scray

A horizontal cloth storage scray that can be placed between machines that are not in line is available from Cook P & N Machine Co., 305 Dorchester Ave., Boston 27, Mass. The model shown is 110 ins. wide and can maintain continuous production between machines 40 ins. out of line. Automatic control of the amount of cloth in the scray is provided, and scray capacity is governed by adjustable top and bottom sheets. Any desired width can be supplied in straight or offset models. (T-6)

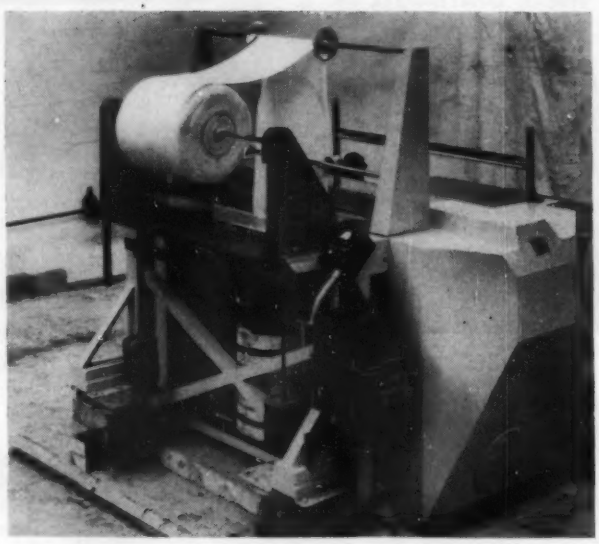
Portable Rotary Press

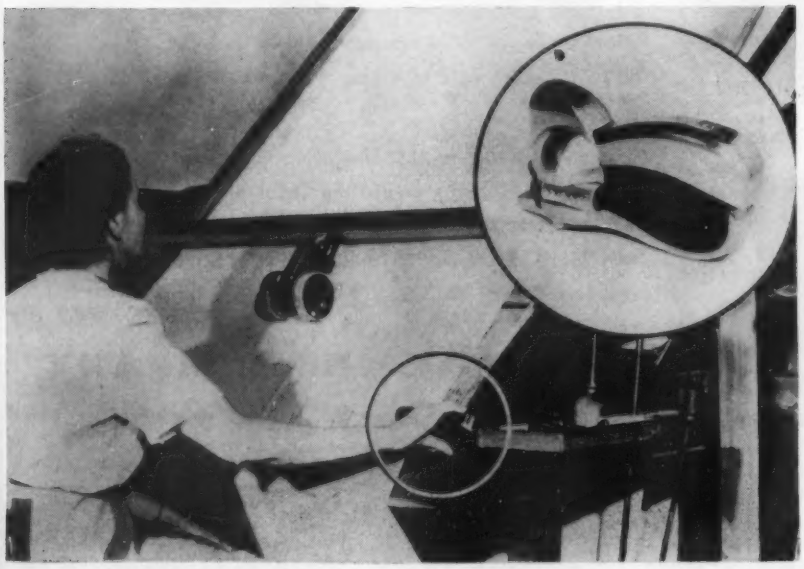
The Bates rotary press for T-shirts, athletic shirts, jockey shorts, children's panties, etc. is available from Garment Finishing Equipment Corp., 18 Brattle St., Cambridge. Mass.

A feature of the Bates press is an attachable calendering unit that permits the finishing of tubular fabrics at 15 yds. per min.

High production is coupled with improved pressing because of a combination of low-pressure steam and a high surface temperature (approximately 200° C.), thermostatically controlled, of the polished-metal revolving cylinder of the press.

Before the garments are pressed, they are subjected to treatment by water vapor, generated by an electrode boiler built into the machine and automatically fed and controlled from the machine's self-contained water tank. The Bates unit is portable, and it needs only to be plugged into a standard power outlet. (T-7)





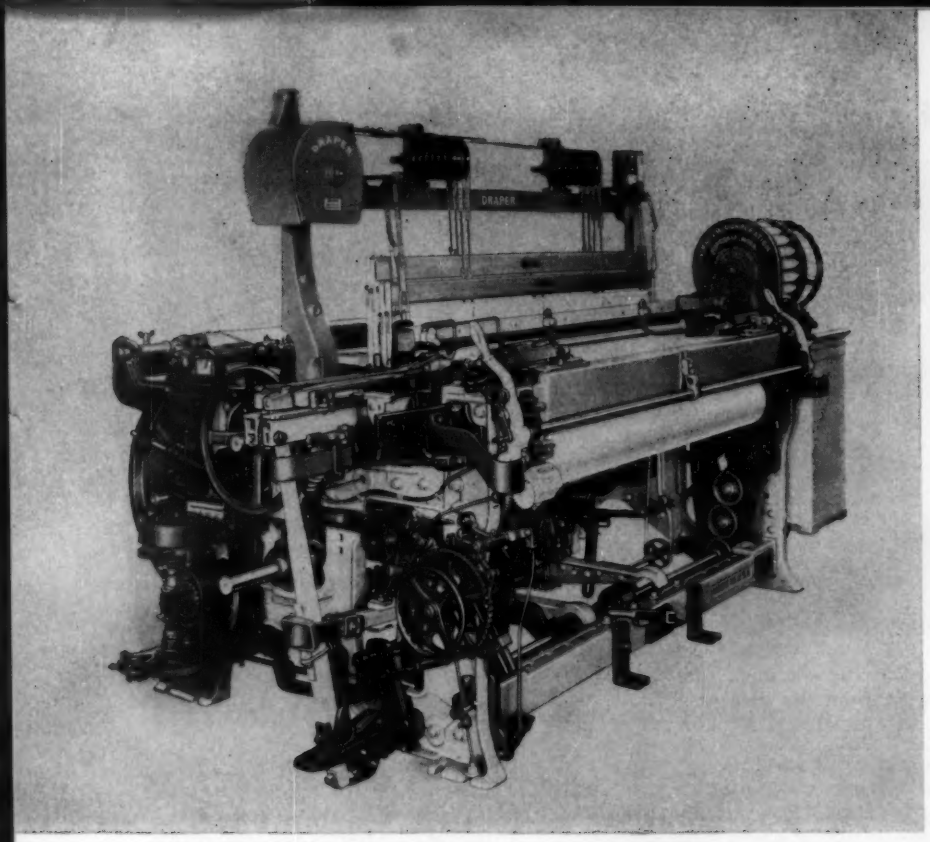
Correction

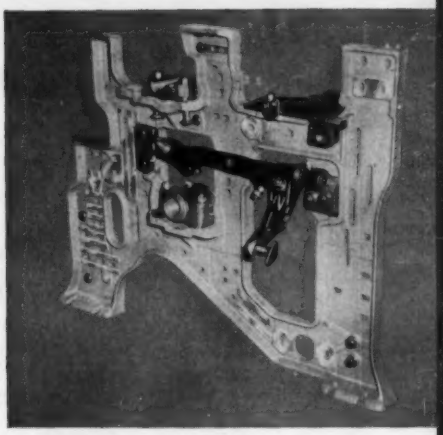
The Mark-Fix 3, a selvage marker available from Uster Corp., Charlotte, N. C., could hardly be seen in the picture on Page 160 in the March issue of TEXTILE WORLD. In case you missed it, the inset shows a closeup of the device, and it is shown in action inside the white circle. In the March issue, the white circle came out too blurred to call attention to the small device.

The Mark-Fix 3 inserts colored thread loops to mark cloth for defects, mispicks, streaks, and where marking is now done by hand sewing.

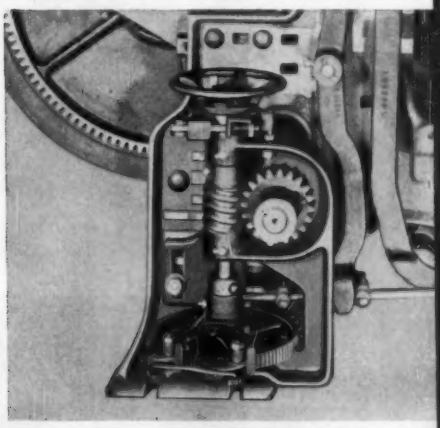
One mill uses the device to make shift marks.

It can be used to put thread tags in selvages on the loom, the inspection table, or in the dyehouse. (T-8)





MORE MILLED and broached surfaces ensure better fit . . . less wear on component parts.



SIMPLIFIED DESIGN, precision gearing, and practical use of anti-friction bearings permit more accurate let-off adjustments.

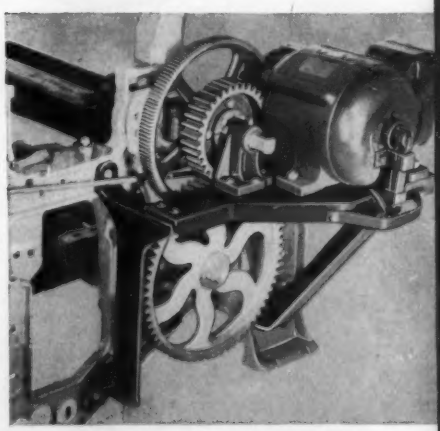
THE DRAPER X-2 IS THE WORLD'S FINEST SINGLE SHUTTLE LOOM

Here's why:

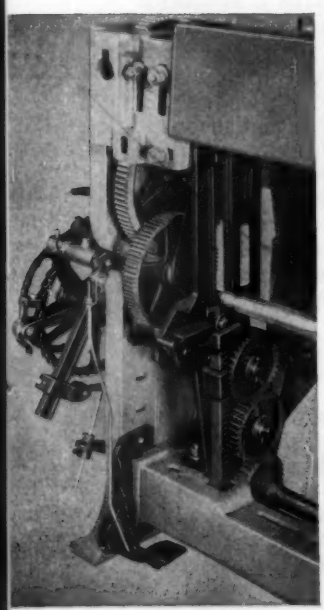
Precision manufacture, rigid construction, and uniform parts permit operation of the Draper X-2 Model Loom at speeds far greater than heretofore possible.

Added efficiency and increased production are direct results of fewer mechanical stops, and the practical application of finer warp and filling controls.

The value of Draper X-2 Looms is clearly indicated by the increasing demand for this model . . . and the *more than* 80,000 *already in use.*



THE DRAPER-DIEHL Power Transmitter . . . a compact power unit providing greater weaving efficiency with less maintenance.



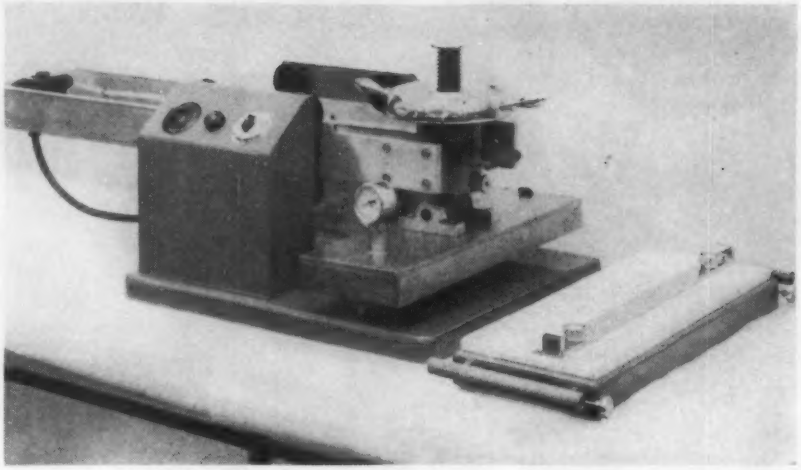
THE RATCHET TAKE-UP permits more accurate yarn control . . . makes it easy to match the pick.

DRAPER CORPORATION

HOPEDALE, MASS.

ATLANTA, GA.
GREENSBORO, N. C.
SPARTANBURG, S. C.

Pressing Tester

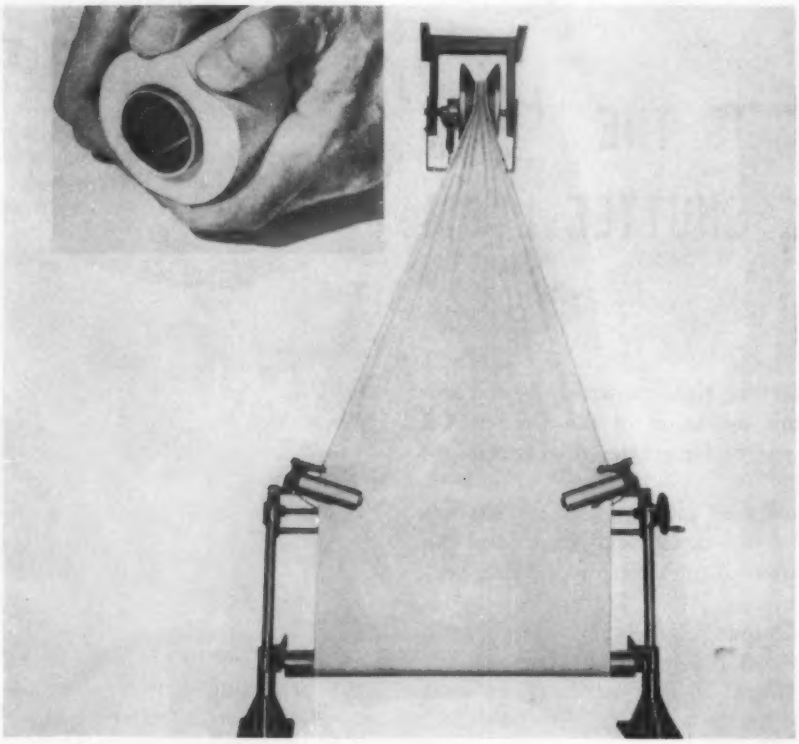


A pressing tester that measures the dimensional change in the shrinkage of textiles is available from Karl Frank GmbH., Weinheim-Birkenau, Germany. The device has an electrically heated pressing iron with an effective surface of 60x20 cm., and a pressing table is provided.

The iron is mounted on a carrier, which travels horizontally on rollers. It can be rotated 90° in the horizontal plane to test the sample in both directions of the fabric. During the pressing test, the iron acts under its own weight. A thermostat regulates the heating current to maintain a temperature of 220° C.

Smoothing levers assure uniform, strain-free, and unwrinkled positioning of the specimen on the felt. After an interval of at least 1 hr., the shrinkage of the specimen can be read directly from the percentage scale.

A special scale, calibrated in percentage figures, provides automatic marking of the length of the specimen. **(T-9)**



Guider Roll

An improved guider roll has been announced by Mount Hope Machinery Co., Taunton, Mass. The roll is made of MH-31, a rubber-like material specially formulated for the job. MH-31 is soft, and the rolls hold fabrics tenaciously under light pressure. Delicate fabrics, such as light rayons, marquisettes, lace, and gauze, can be opened or guided without danger of fraying.

In a test installation, sheeting up to 120 ins. is opened horizontally at high speeds without losing cloth from the nip. Since the scutcher is eliminated in new installations, the equipment cost is less.

Damaged goods are said to be substantially reduced.

A set of test rolls, in continuous operation for more than seven months under actual production conditions, have shown no noticeable wear.

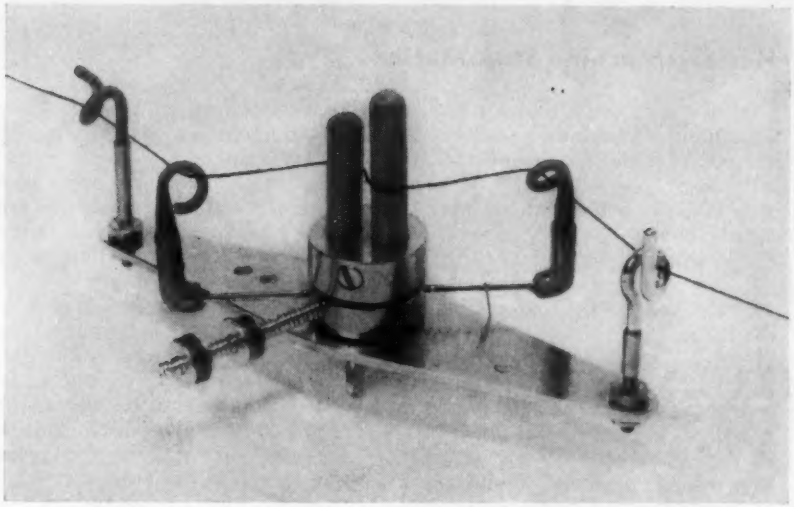
The guider roll is included as standard equipment on applicable Mount Hope devices. Rolls are also available as replacement equipment. **(T-10)**

Improved Tension Analyzer

Better tension control in spinning, winding, and warping is possible with a new model of the Brush Tension Analyzer, which is available from Brush Electronics Co., 3405 Perkins Ave., Cleveland 14, Ohio. The analyzer accurately measures and records actual tension levels and tension variations in any filamentary material while it is being processed.

Other features: easy mobility; positioning at 1 to 8 ft. above the floor; applicability to any fiber, natural or synthetic; and a range from 4 to 400 grams full scale. A frequency cut-off enables the operator to filter out short-term tension variations so that long-term variations can be isolated.

Instantaneous tension measurements are read directly from the chart record in grams. An event marker is attached. **(T-11)**



Constant-Tension Device for Redrawing Machines

Heany Industrial Ceramic Corp., New Haven, Conn., has announced the Carroll constant-tension device, which was developed by Robert L. Carroll, Heany's representative in Greenville, S. C.

The device, mechanical in operation, uses no springs or magnets to correct or hold a given tension. The device has been tested in several synthetics plants; it will hold critical tensions on yarn from any type of supply package at a wide range of yarn speeds.

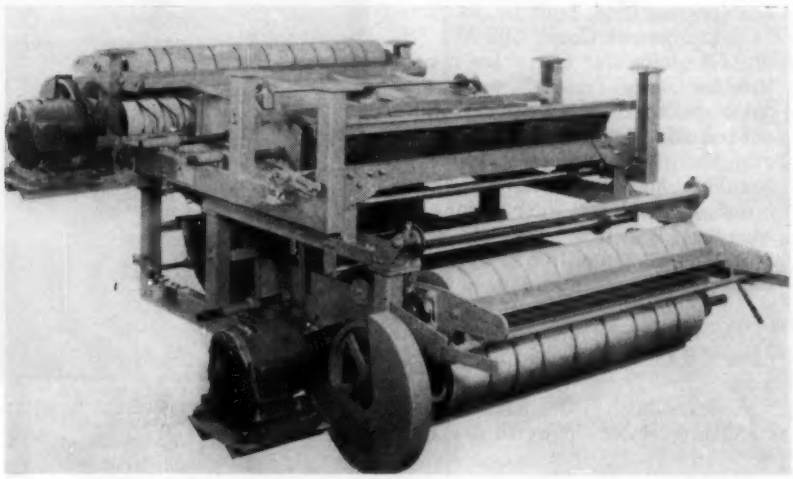
When tension increases on the yarn, a movable assembly that holds two Heanium eyes moves in a clockwise direction, which reduces the surface of the two Heanium posts and equalizes the tension. As tension decreases from the supply package, the assembly moves counterclockwise back to the original setting for the normal tension.

In one test plant, low-twist nylon is redrawn faster than standard practice and wide variations in take-off tension on the nylon yarn have been eliminated.

Since no squeeze is used in the device, there is no danger of strip-backs in low-twist yarn. Each unit can be set to an exact tension with reference to other units, and the same tension is held as long as the setting remains the same.

The device is normally mounted in a vertical position, and it will control tension on yarn pulled down as well as yarn pulled up.

For horizontal mounting, a cord over a small pulley attached to a suspended weight activates the tension device. **(T-12)**



Double-Tier Scray

The Cook patented double-tier scray makes possible continuous operation of processes handling two strands.

In printing, white goods can be stored in one section and back grays in the other. Automatic controls on each scray stop the machine when scrays are full. The machine starts again when a predetermined yardage has been run off.

Available in widths up to 120 ins. and capacities to 1,500 yds., the double scray is made in either straight or offset models by Cook P & N Machine Co., 365 Dorchester Ave., Boston 27, Mass. **(T-13)**

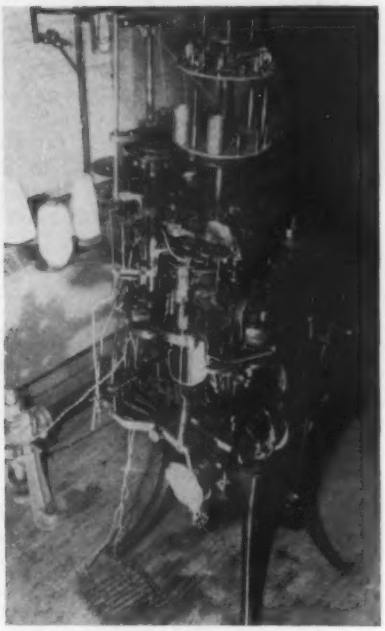
Hosiery Inspecting Machine

The Model 6,000 inspection machine built by Southern Textile Machinery Co., Paducah, Ky., features an air-operated expanding and collapsing form for seamless and full-fashioned stockings.

The full-fashioned form is narrow to allow for inspection of the smallest stocking without effort. The seamless form is wide when expanded for best toe inspection and for reduced trimming time.

The stocking can be removed from the form when the form is collapsed. Turning is done by drawing the stocking through the form. The machine is quickly converted from stacking to bagging.

Forms on the inspection machine can be quickly changed to suit either seamless or full-fashioned hosiery. **(T-14)**



Hosiery-Machine Stop Motions

Four electric stop motions for circular-hosiery machines have been developed by Edley Machine Co., 1914 English St., High Point, N. C. The stop motions help to cut bad work to a minimum.

The stop motions include yarn, needle, and wrap-yarn stop motions, and a device that prevents socks soiling on the floor.

The yarn stop motion is particularly suited for rubber yarns, but different weights of dropper will take care of all yarns. The yarn holds up an insulated wire; when the yarn breaks or runs slack, the wire drops on a grounded bar and immediately stops the machine.

The needle stop motion is simplicity itself. An insulated bar holds a curved contact, which touches any broken, open, or stiff latches to instantly stop the machine. The contact is pulled away from the needles by the pattern-drum control during the make-up courses.

The wrap-yarn stop motion is an insulated metal ring above the yarn tension springs. Broken or relaxed yarns cause the tension spring to rise and touch the metal ring.

The floor device is a series of metal bars with alternate bars charged and the remainder grounded. When the metal plate on the socks touches the device, a contact is made between the charged and grounded bars. This device stops the machine to prevent socks soiling on the floor.

The machine cannot be restarted until all faults are rectified. The devices are automatically reset when the fault is fixed, and the contact points cannot be tampered with in any way to allow the machine to run on faulty fabrics. **(T-15)**

Twister Guides

ALSiMag 193 twister guides for use with Universal holders are available from American Lava Corp., Chattanooga 5, Tenn. Yarn quality can often be improved through the uniform tensions delivered by these guides. They are extremely hard and durable, which permits higher speeds and higher tensions, even on abrasive yarns. With no surface skin to wear through, they reduce the possibility of yarn damage from undetected guide failure.

The guides are electrical conductors, and they help to control static when grounded through the metal holder. A satin finish is standard; other finishes can be supplied on special order. Special designs can be made to specifications. **(T-16)**

Preboarding and Boarding Machine

The Sarco preboarding and final boarding machine, built by Southern Mill Equipment Corp., 508 W. 5th St., Charlotte, N. C., is for men's, children's, and misses' socks and ankle socks.

Production can be increased 60% over the steam-pressure methods of boarding and preboarding. Fewer boards are used, and the cost for electricity is less than 60¢ per shift. Since steam or moisture is not used, bleeding, fading, and running of colors are eliminated.

The operator stands or sits in one place and the rotating part holds eight forms.

A heavy-duty model has a hot-air circulating system powered by a ¼-hp. motor for heavyweight wool and cotton socks. **(T-17)**

Picker-Tare-Weight Indicator

A picker-tare-weight indicator, developed jointly with Kendall Research Laboratories, has been announced by Strandberg Engineering Laboratories, 446 W. Market St., Greensboro, N. C. The instrument, which is a modification of a Strandberg Moisture Monitor, accurately measures the tare weight of picker laps as determined from the moisture content of the lap as it is being made.

Normal variations in raw-cotton regain often cause laps held to ±½ lb. to differ by several pounds before carding. With the tare-weight indicator, approximations of tare weight are not necessary.

The instrument is calibrated in terms of moisture content and weight; the scale calibration is based on a 44.7-lb. lap at 7% moisture content. A conventional rake or other assembly is used for making electrical contact with the lap as it leaves the picker. The moisture information is converted into pounds. **(T-18)**

CONTINUED ON PAGE 226

AFTER 6 YEARS *CONTINUOUS* MILL OPERATION

. . . these ACROPAK Bobbins are STILL RUNNING without a trace of distortion!

You have to forget old standards of performance when you talk about ACROPAKS. These strong, tough aluminum bobbins set new and higher standards that mean lower production costs for you. Who ever heard of bobbins taking the pressure of synthetic yarns for 6 years of continuous operation without a trace of distortion?

A better product . . . at a competitive price . . . to save you money in the long run

It's the engineering and the *construction* that puts these new bobbins so far ahead of the parade. Note that the head is an *integral part of the barrel.* No cracks — no seams to trap yarn. They're precision-built so you can be sure of concentricity and level winding. They do the job better and with greater accuracy. Light weight speeds up handling, gets more work done with less operator fatigue. Will you let us give you the facts?

Head is integral part of barrel

No chance for yarn entrapment

SIZES

3 3/4" head, 2" bbl. 4" head, 2 1/4" or 2 1/2" bbl.
5 1/16" head, 3" bbl.

(If desired, barrels can be furnished perforated for steaming)

In addition,
we also make this type of assembled Bobbin — *AT LOWER COST*

This Bobbin is competitive pricewise. But, if you saw the trouble we take in building it and the kind of materials we use, you'd think it was a mainliner. It's made of the strongest aluminum alloys known to science — with physical characteristics comparable to some steels.

It's an assembled bobbin—a special process of our own development that fills all cracks . . . permanently! No trapping of yarns. You can have it in any size you want; and it can be furnished with transfer ring if desired. Let us show you what this rigid, light-weight bobbin can do for you.

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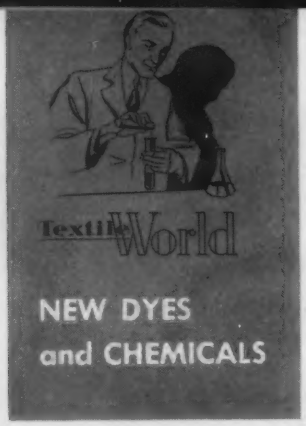

Nylon Finish

Emkasorb . . . designed to improve absorbency of nylon knitted hose or fabric, particularly the new stretch-yarn fabrics. Has leveling and softening properties and is resistant to acids, tartar emetic, and tannic acid. Applied in the dyebath or in the final rinse at the rate of 3% on the weight of the goods. Gives instantaneous moisture absorption after drying. Emkay Chemical Co., Elizabeth, N. J. (D-1)

Surfactant

Procol PW . . . a purified condensate of a degraded protein and a fatty acid, combines the protective effects of proteins with the detergent power of a soap, without the disadvantages of soap. Stable to chlorine and peroxide bleaching solutions; promotes controlled bleaching with higher strength. High dispersing effect is useful in vat, naphthol, and acetate dyebaths. Hart Products Corp., 1440 Broadway, New York, N. Y. (D-2)

Cotton Softener

Dexene 77 . . . is an anionic softener superior in softening properties to old-type softeners used on cottons; nonyellowing and provides better sewing qualities. Does not affect lightfastness of dyes. Dexter Chemical Corp., New York 59, N. Y. (D-3)

Nonionic Softener

Dextrol GM-94 . . . designed specifically for use with water-repellent finishes. Will not affect spray ratings. Has no wetting or rewetting properties. Mixes with latices to produce more-pliable films for rubber-backed materials and will not develop color or odor on storage. Resistant to salt, acids, and alkalis. Dexter Chemical Corp., New York 59, N. Y. (D-4)

Diazonium Salts

National Blue 3BVS Salt . . . a stabilized diazonium salt that produces a range of shades from greenish to reddish blue when coupled with various naphthols. Most shades have excellent fastness to light, washing, soda boil, and other processing. Applied by padding, pressure-dyeing machines, or printing; gives white discharges with hydrosulfite. Suitable for resin-finished fabrics. National Aniline Div., Allied Chemical and Dye Corp., New York 6, N. Y. (D-5)

Synthetics Dyes

Amacron Dyes . . . specially developed for dyeing Dacron. Amacron Yellow LS, Amacron Orange LS, Amacron Red BLS, Amacron Red Violet LS, and Amacron Blue RLS available. Amacron Yellow RLS, and Amacron Orange GLS have been added to this list to make possible production of all mode shades. American Aniline Products, Inc., New York 3, N. Y. (D-6)

Finishing Resins

Emboset Loclor . . . a low-chlorine-retentive resin that produces crush-resistant and stabilized finishes on cotton and rayon. Suitable for glazed chintz finishes on cotton; does not yellow; keeps strength losses at a minimum. (D-7)

Emboset NR . . . well suited to the production of crease-resistant, stabilized, and firm finishes on acetate, Orlon, Dacron, or nylon. Efficient on heavy nylon shoe cloth and nylon sheers where a firm, resilient hand is needed that is resistant to washing and dry-cleaning. Metro Atlantic, Centerdale, R. I. (D-8)

Diazotizing Assistants

Azomatic Solutions . . . improve diazotization of naphthol colors, used in dyeing and printing. The product is stirred into acidified water and gives tar-free diazos in seconds. Concentrated solutions are stable under operating conditions; produce bright, deep shades of improved crock-fastness. Solutions are free of undissolved matter. Clean-up time after use is much reduced. Augusta Chemical Co., Augusta, Ga. (D-9)

How To Apply SILICONE RESINS

THE SILICONE RESINS have provided a new tool for finishing the hydrophobic fibers such as acetate, nylon, Dacron, and Orlon. More recently, silicones have been adapted to finishing cotton and rayon to give water repellency.

The silicone resins form a continuous hydrophobic film on the fibers; and for best results, all foreign matter such as yarn lubricants, sizing material, and dyeing assistants must be completely removed before the silicones are applied. Fabrics to be treated should be at a pH of 6 to 8 and should be thoroughly dry.

From a paper presented at an AATT meeting by Fred Fortess, Celanese Corp.

How To Prepare the Solution

The silicone resins adapted to textile finishing are supplied as a thick white paste of from 20 to 40% concentration. Catalysts are used in conjunction with the resins to aid in the formation of the hydrophobic film during the curing process. The amount of silicone resin to use will vary with the fabric and its end use. General formulation should provide 0.25 to 2.0% deposited solids.

The required amount of resin plus catalyst is diluted with cold water with

CONTINUED ON PAGE 208

DRUSIL

NEW silicone finish ...better for all fabrics —even wool!

DRUSIL W
Proven by Performance

- Wool can now be treated without difficulty thanks to DRUSIL W. Its low curing temperature makes it possible. No added catalyst needed.
- Exclusive molecular structure, balanced formulation make DRUSIL W more stable and adhesive than any.
- DRUSIL W imparts durable moth resistance, improves abrasion resistance and tear strength.

These are some of the outstanding features that make DRUSIL W the best silicone finish.

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THIS IS NO. 110 OF A SERIES ON

GETTING THE MOST FROM TWISTING

Information about twisting designed to show improvements in twisting equipment and new ideas in the twisting operation

LUBRICATING FEED ROLL GEAR MODEL 10 RING TWISTER

There are five different lubrication points on the Model 10 Feed Roll Assembly, four of which are shown in the illustration Figure 1.

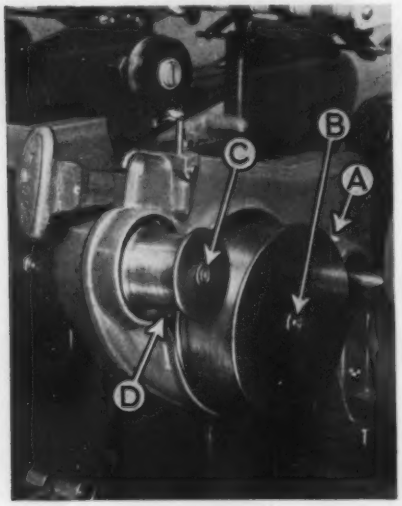


Fig. 1

These four points to be lubricated are:

Feed Roll Drive Shaft. It is lubricated through the opening (A) which passes through the housing but not the bushing. Thus the opening serves as a reservoir and permits the oil to seep slowly into the bushing and onto the drive shaft. It should be checked weekly.

Feed Roll Studs. Oil should be injected into the felt wicks at B & C with a pistol oiler every three months.

Intermediate Gear Stud. Should be oiled at D in the same manner and at the same frequency as the Feed Roll Studs.

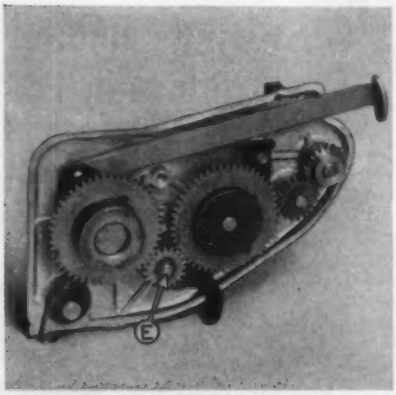


Fig. 2

The fifth lubrication point is the intermediate gear stud shown in Figure 2, (E). This gear stud is also lubricated by injecting oil into a felt wick with a pistol oiler, and can be reached through an opening in the Feed Roll Housing. The opening is covered by a small black, moveable shield, which can be seen in Figure 3. The teeth on this gear should be greased every six months. N.L.G.I. #2 grease should be applied with a small brush through the opening in the housing. The Feed Roll unit should be stopped while the gear teeth are being greased.

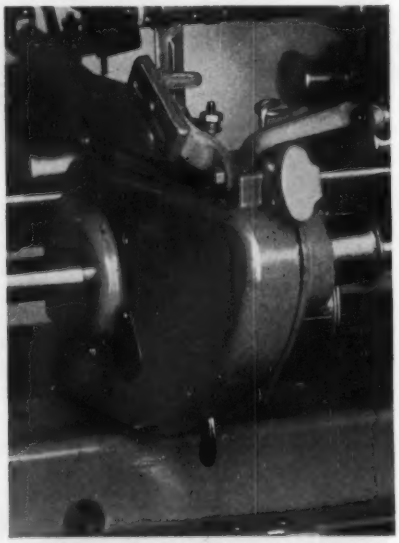


Fig. 3

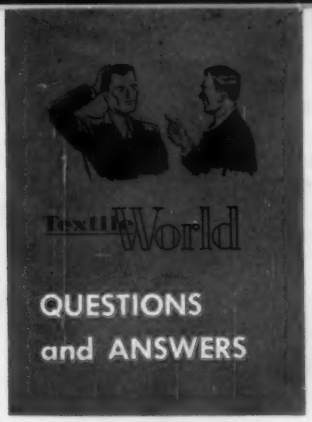
May, 1955 — 23.4.20A

WINDING AND TWISTING MACHINERY FOR NATURAL AND SYNTHETIC YARNS

UNIVERSAL WINDING COMPANY

LEESONA®

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA LOS ANGELES MONTREAL and HAMILTON



▶TEXTILE WORLD's editors are at your service to help solve your problems in yarn manufacture, weaving, knitting, dyeing, finishing, or other textile operations. If you have a technical problem bothering you, send it along to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

How To Cover A Warper Drum

Technical Editor:

How do you seal the junctions when a warper drum is covered with felt? (9872)

The usual method is to remove the covering and clean the surface thoroughly with a solvent to dissolve any adhesive cement left on the warper drum. Cover the drum with adhesive cement, and wind a roll of felt 2 or 3 ins. wide on the drum in a spiral. Follow the instructions furnished by the adhesive manufacturers as to the best method of applying the adhesive cement to the drum.

If the felt covering is kept tight and the edges close together, there should be no junction marks on the drum. Keep the roll the same diameter, or the yardage clock will not register an accurate amount of running yards of yarn.

Use Special Oil On Picker-Lap Pins

Technical Editor:

Is special oil used to prevent trouble on fillet cards when lap-pin oiling is done on pickers? (9870)

The same type of oil used for spraying on raw cotton is recommended for use on lap pins. This compounded oil is stainless and easily removed in the finishing processes.

Regular lubricating oil should not be used for this purpose if trouble is to be avoided in later processes. Avoid using an excess of any kind of oil to prevent loading of card wire from oil-soaked lap ends.

Buck Sour Is Useful If Properly Controlled

Technical Editor:

What is a buck sour? Is it safe to use on cotton that won't bleach with regular chemic? (9879)

A buck sour is a sodium-hypochlorite solution acidified to make it more active. Normal chemic is alkaline to a pH of at least 11 and depends for its action on hypochlorous acid formed from carbonic acid. The carbonic acid is a product of carbon dioxide from the air dissolving in the water of the bleaching solution.

This bleaching effect is normal. However, if a more-active bleach is required for a special purpose, the bleaching solution can be acidified. Acetic acid is preferred for this purpose. The pH of the solution should be brought down to 4.5 to 5.0. This pH will cause some evolution of gas because the action is rapid, but damage to cellulose at room temperature is very slight at this pH.

However, we suggest that careful trials be made prior to exposing a large

---

TEXTILE TICKLES . . . . . *By Edgard Allen, Jr.*

"Well, at least you must admit it removed the dirt spot!"

amount of cloth to this treatment. All other possible conditions that may contribute to a poor white should be eliminated before a buck sour is considered as a regular part of bleachhouse routine.

Trubenized Cloth Resists Wrinkling

Technical Editor:

What is Trubenized cloth? (9822)

Trubenized is a trade name of the Trubenizing Process Corp. for a process for making fused garment parts. The cloth resists crushing, wrinkling, or buckling but retains its normal porosity. The cloth is used chiefly for shirt collars.

The solution used for fusing is applied to cotton fabric under heat. A layer of special acetate underlining is placed between two layers of cloth. The layers then pass through another fusing operation.

Traveler Speed for 30s Is 5,000 Ft. per Min.

Technical Editor:

What is the best traveler speed and ring size to use for 30s warp yarn? We understand that one mill runs 2¼-in. rings on this yarn, and yet other mills run 2-in. or 1¾-in. rings. Which ring is proper, most efficient, and least costly? (9878)

On warp spinning, the spindle-speed limitation is the high tension to which the yarn is subjected in the thread balloon when the traveler speed is in excess of 5,000 ft. per min. You must therefore run slower spindle speeds to spin on the larger-diameter rings, which means lower front-roll speeds and lower production. There is a problem to fit a traveler to spin good ends at the start of the doff as well as at the end of the doff.

A traveler speed of 5,000 ft. per min. is high, but plenty of mills operate regularly at that rate.

Traveler	Ring	Yarn on bobbin		Spindle	Front roll
Ft. per min.	Dia. (ins.)	Oz.	Yds.	Rpm.	Rpm.
5,000	1.75	2.85	7,000	11,000	150
5,000	1.875	3.33	8,200	10,250	140
5,000	2.00	3.84	9,400	9,500	129
5,000	2.25	4.92	12,000	8,500	116

THIS TABLE is based on a 30s warp yarn spun with 4.25 TM. In each instance, the traveler speed is the maximum of 5,000 ft. per min.

Drawing-Frame Drafts Should Be Distributed

Technical Editor:

What partial drafts and settings do you suggest on six-roll drawing frames for better uniformity? Do you suggest six or eight ends up for two processes? We make a 68-grain sliver on both passages. (9869)

One authority on this subject uses and recommends the following method of distributing drafts to secure the best fiber control in all drafting zones: The entering sliver weight is reduced the same number of grains in each zone. The draft in each successive zone is increased in the same ratio as the weight of the sliver is reduced in the previous zone.

This method is said to give the maximum control of fibers in all zones. Eight ends up with proper draft distribution should give good results on drawing.

This drafting rule applied to your organization would work out as follows with five drafting zones:

Eight ends up at 65 grains per end.... 520 grains
Weight of delivered sliver ..... 65 grains
Difference in weight. 455 grains
Number of drafting zones 5
Reduction per zone (455 ÷ 5) ..... 91 grains

(Back) Zone 1. 520 ÷ (520 − 91) = 520 ÷ 429 = 1.213 (draft)

2. 429 ÷ (429 − 91) = 429 ÷ 338 = 1.269

3. 338 ÷ (338 − 91) = 338 ÷ 247 = 1.367

4. 247 (247 − 91) = 247 ÷ 156 = 1.583

(Front) 5. 156 ÷ (156 − 91) = 156 ÷ 65 = 2,400

These zone drafts multiplied together plus the tension draft will give a total draft of about 8.00. Gearing limitations may prevent obtaining drafts to the exact figures given, but this formula can be used as a basis for estimating proportional draft in the different zones.

Try 50-Den. Yarn To Get Tricot Weight

Technical Editor:

Do you have any suggestions for ratios and runners to get 4 yds. to the pound of 75-den. acetate jersey? (9875)

To get your 4-yds.-to-1-lb. yield, try 72½- and 88-in. runners. Finish your fabric as wide as possible. If you cannot get your desired fabric weight, use a 50-den. rayon in one bar.

Reduce Static In Stretch Socks

Technical Editor:

What can we do to reduce the static that builds up in our Helanca socks while they are being knitted? (9886)

There are several things you can do. The best thing to do is keep the humidity in your knitting room to 60% r.h. There are several types of humidification systems available that will maintain this humidity at a constant level. A constant level of humidity will also help control your lengths.

You can also apply an antistatic solution to your yarn as it runs from the cone to the needles. A wick in an oil jar fixed to the bobbin stand will do this job satisfactorily.

Reduce all excessive friction points where the yarn flows over tensions, eyes, rods, and stop motions. Keep the yarn tension low.

One reader prevented the socks jumping from the can on his Komet machines by fixing a guard below the take-up rolls. [See TW, March, '55, p. 175]

Weave Taffeta For Good Selvages

Technical Editor:

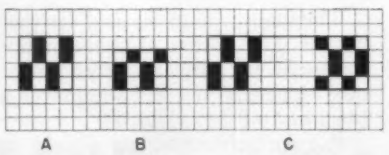
How can I get smooth, clean selvages on our rayon cloth? (9876)

Warp the beam exactly right. Do not make it too wide or too narrow. Don't get too many or too few ends in the edges. Suitable numbers of ends are 32, 48, or 60.

Use a taffeta weave for the selvage. This weave is determined by the size of the filling yarn and the number of picks to the inch in the cloth. Very heavy filling yarn calls for a two-pick taffeta weave. Use this weave also when there are more than 52 ppi.

To keep the ends from weaving ahead, weave the left edge straight and the right edge one pick ahead.

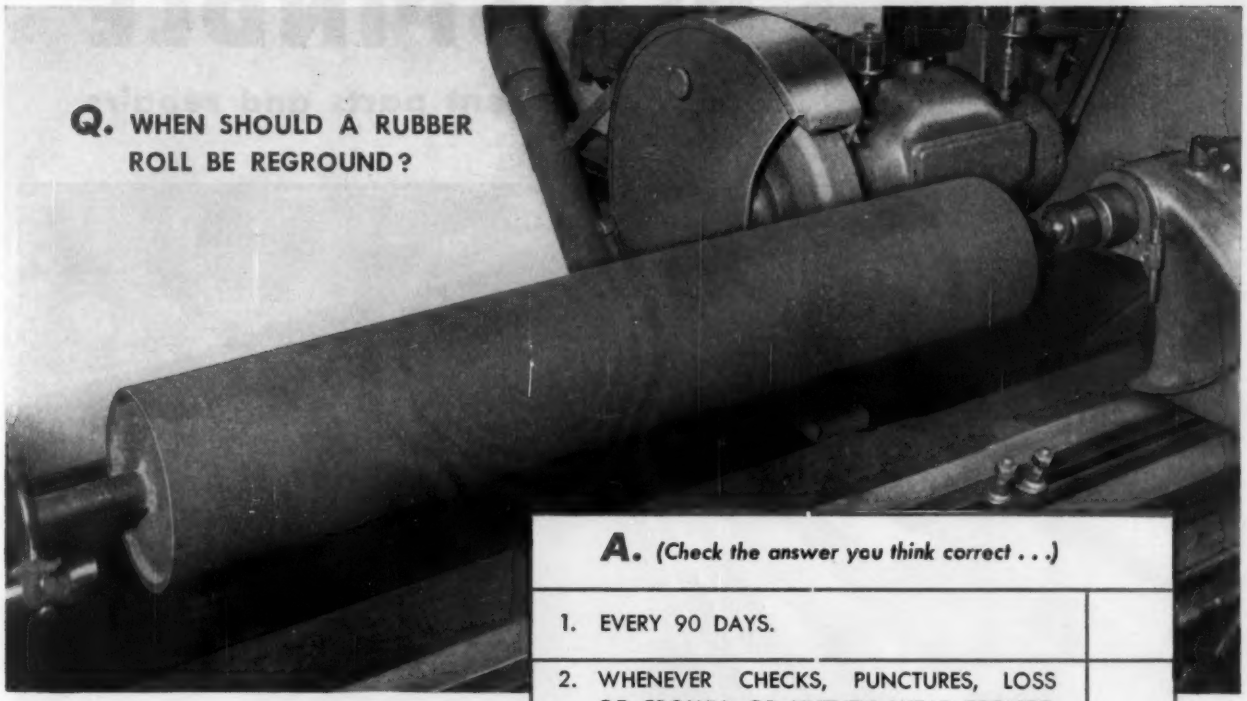
Edges of some fabrics can be made flatter with two picks of two-pick taffeta and one pick of one-pick taffeta. This construction helps prevent the edges rolling.



TAFFETA WEAVES are used to reduce edge rolling and make better selvages. *A* is a two-pick edge, *B* is two- and one-pick taffeta, and *C* is a one-pick edge with one pick ahead on the right edge.

STOWE-WOODWARD Maintenance Tips

for better finishing at lower cost



Q. WHEN SHOULD A RUBBER ROLL BE REGROUND?

A. *(Check the answer you think correct . . .)*	
1. EVERY 90 DAYS.	
2. WHENEVER CHECKS, PUNCTURES, LOSS OF CROWN, OR UNEVEN WEAR REQUIRE.	
3. WHEN TAKEN OFF MACHINE AND PUT INTO STORAGE	

You'll find the correct answer in these Maintenance Tips

If you checked answer #2, and you probably did, score yourself 100% because any one of these conditions requires regrinding. Complete breakdown of the rubber cover on a roll can almost always be traced to failure to heed these warning signals.

Frequent grinding is your best assurance of satisfactory performance and long roll life. The longer a roll is kept in operation with a checked, or otherwise damaged cover, the greater the cut necessary to restore its surface. Wherever possible, dry grinding is recommended followed by sanding with fine grit paper. Do not grind rolls when removing from the machine to place in storage. Although it is all right to rough grind at this time, finish grinding should be done just before installing, to insure a fresh surface. When grinding, be sure to remove all traces of cracks or checking in the covers. If these are not ground out, the covers will check prematurely when placed in service.

Your Stowe-Woodward engineer will be pleased to help you with any problem regarding the care and maintenance of rubber covered rolls.

"RUBBER ROLLS with a REPUTATION"

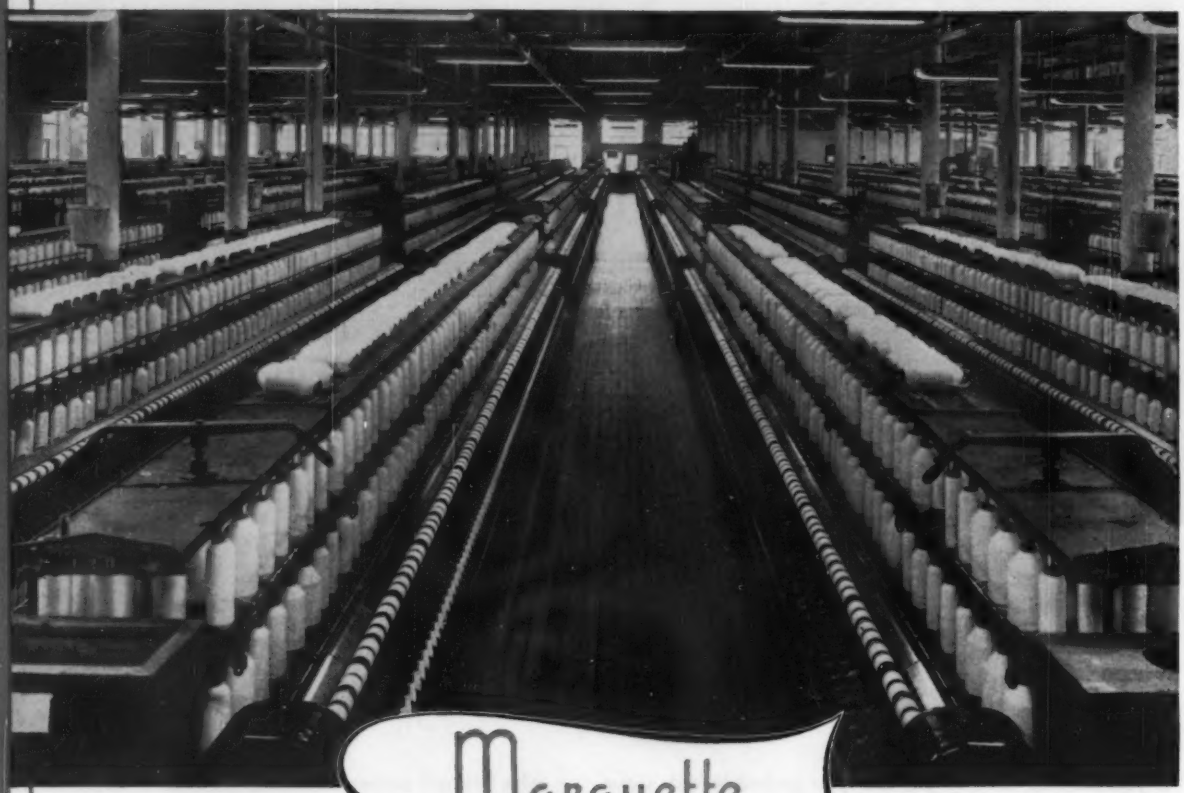
STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN — NEWTON 64, MASSACHUSETTS — GRIFFIN, GEORGIA

3/4¢ PER SPINDLE

for replacement parts and repairs



Marquette

ROLLER BEARING SPINDLES with full-floating footstep bearing . . . *for all textiles*

Starting with an installation of 13,800 Marquette Roller Bearing Spindles in 1946, this important South Carolina mill has since purchased a total of ***74,422.***

In all these years they have spent ***only $546*** for replacement parts and repairs—***or $.0073 per spindle!*** Marquette Spindles have other cost-saving features, too. They save on lubrication, tapes and power.

You too can increase your production and reduce your costs. We'll be glad to prove it with a test installation in *your* mill.

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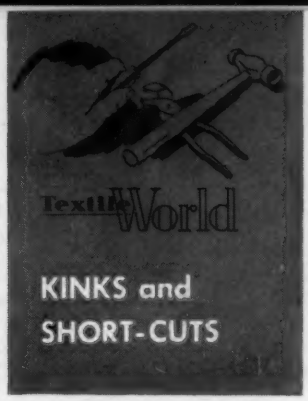
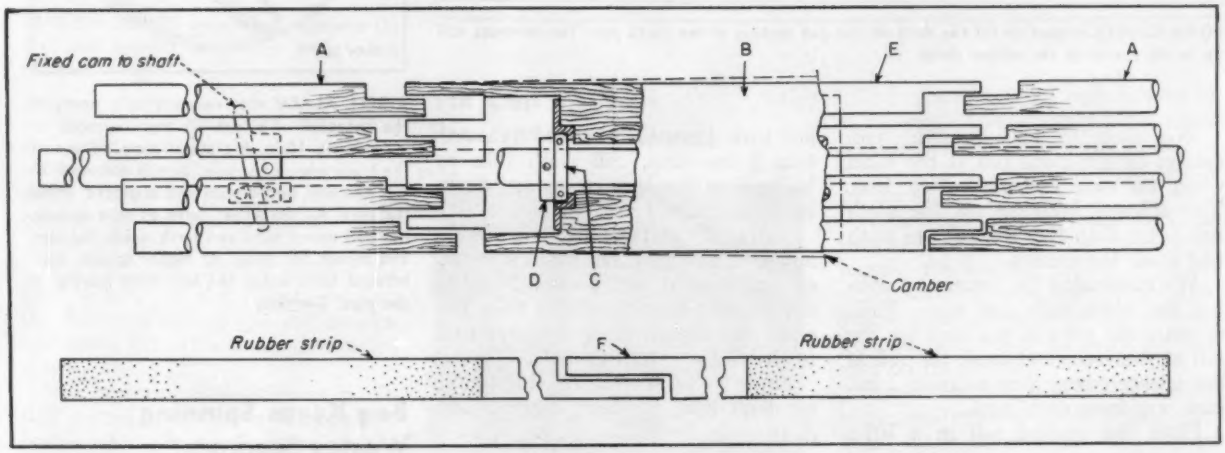


Reduce Fabric Bow With Floating Center Expander



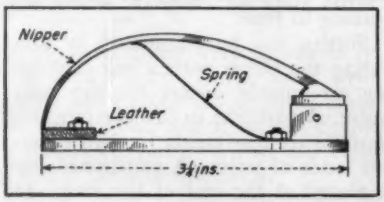
PLAIN-CENTER wood float expander parts are modified as follows: *A* is the original outer part of the expander, *B* is the plain wooden center that replaces the original section, *C* is the ball race carrying one end of the center, *D* is the collar used to keep the center in place, and *E* is an alternative lagged center. *F* shows how rubber strips can be applied to expander lag.

Very light cloth constructions sometimes bow in passing over a fabric-actuated wooden expander of the conventional type. This bow is caused by the lags working across the entire face of the fabric.

In the modification shown here, about one-third of the center position is replaced by either a plain wood roll or a lagged one. This center is mounted on ball bearings and is independent of the action of the cam-operated expander lags. Stretching is confined to the outer edges of the fabric in order to leave the center area free from pull.

For more extreme action, rough-surfaced rubber strips can be applied to the ends of the expander lags. The operation of the movable lags is accomplished by a fixed cam that impinges on rollers mounted on the underside of the lags. *E. Swindells, Macclesfield, Cheshire, England.*

Nippers Help Measure Unknown Staple Lengths



NIPPERS are made of scrap metal and rough leather.

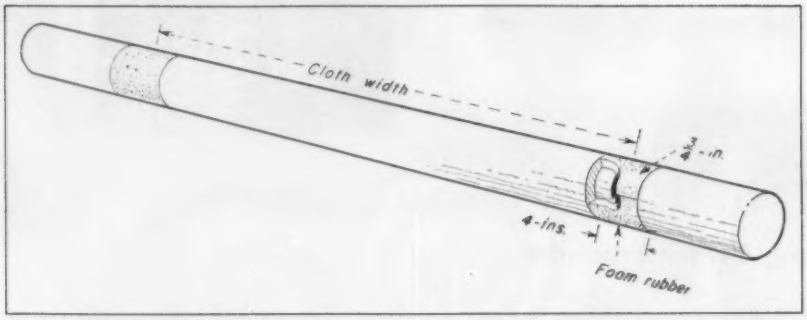
Frequently, we want to learn the staple length of cotton fiber in an unknown yarn. This job can be done quickly and easily with the aid of the nippers illustrated.

Put plied yarn on a twist counter, and remove the twist. Do the same with one length of the single yarn. Double the yarn several times, and break it by hand. Hold the broken strands of yarn in the left hand, and place the ends in the leather portion of the nippers, which are held in the right hand. Close the nippers, and pull the fibers. Open the nippers. The fibers, held by the rough leather, do not fall out. Pull the fibers several more times as described.

The next step is to comb out the fibers still held by the nippers. Remove excess fibers, and lay a small rule alongside the remaining fibers. Measure the staple where the fibers blend, not the full length of the fibers, and you will learn the staple length.

We have checked this method against known staple lengths, and the answer is correct every time. *J. R. Wikle Sr., Charlotte, N. C.*

Foam-Rubber Strips Prevent Creases in Cloth



FOAM RUBBER is used to fill the 4x¾-in. cut-out section of the cloth roll. The selvages roll up in the center of the rubber strips.

We used to have trouble with creases on the cloth roll at the loom when we were weaving cotton leno. The selvages built up on the cloth roll faster than the body of the cloth and made the creases.

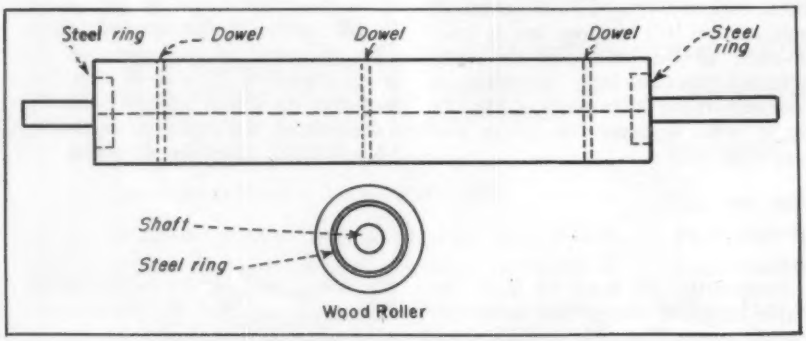
We eliminated the creases by altering the cloth rolls this way: First, measure the span of the cloth on the roll at the loom and mark the roll at the selvage edges; then measure 2 ins. each way from each mark.

Place the marked roll in a lathe and turn down each marked 4-in. section ¾ in. deep. All cloth rolls to be used on the leno are turned down by this pattern.

Strips of foam rubber 4 ins. wide and ¾ in. thick are cemented into the cut-out sections of the rolls. Now, as the selvages build up faster than the cloth, the foam rubber is compressed to absorb the extra thickness.

Since we've been using this setup, we don't have any more creases. *Leo A. Bouvier, Pawtucket, R. I.*

Worsted Card Roller No Longer Falls Apart



DOWEL AND STEEL RING hold together two parts of wooden roller.

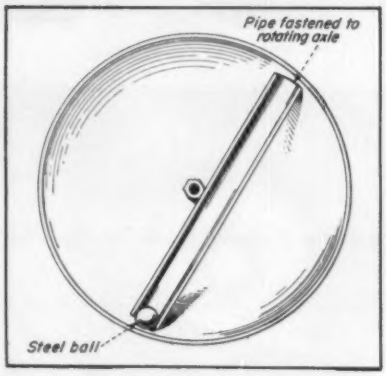
I have new worsted card feeders and have experienced considerable trouble with the top roller of the spike apron. It just seems to fall apart. Time and production are lost in taking it out and replacing it.

The roller in question is made of wood, 4 ins. in diameter over a 1½-in.-dia. shaft, doweled on each end, and spliced with corrugated fasteners.

I fixed up a spare roller this way: I put in an extra dowel, turned in the ends 1 in. deep x ¼ in. wide about ¾ in. down from the outside diameter of each end, and inserted a steel ring.

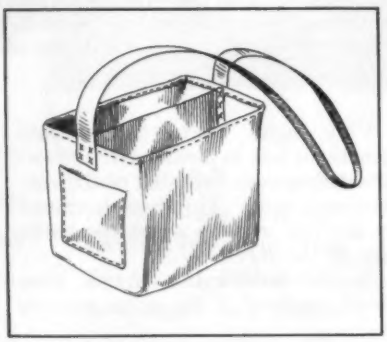
Now, I have no more trouble with the two sections of wood coming apart. *Attilio Viti, Providence, R. I.*

Bell Signals Approach of Lift Truck



A BELL ALARM that automatically warns of the approach of a fork-lift truck is made by installing a 10-in. fire-alarm gong on one of the truck wheels. A ¾-in. pipe is fastened inside the bell, and a steel ball is placed inside the pipe. As the wheel turns at slow speeds, the ball moves back and forth inside the pipe and strikes the gong. At higher speeds, centrifugal force keeps the ball from moving in the pipe. ***Gadgets.***

Bag Keeps Spinning Wastes Separate

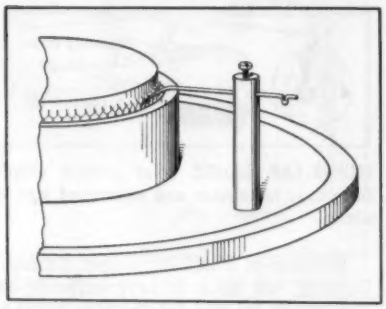


PIECER'S BAG, with separate compartments, can be made of any suitable material.

In piecing up ends on the spinning frame, the hard waste usually falls to the floor or gets mixed with the soft waste. The waste must be sorted according to type.

Sorting can be eliminated by providing the piecer with a bag containing an outside pocket for the hard waste. A partition in the bag provides separate compartments for two different kinds of waste. A partitioned bin is placed at the end of the frame to hold the waste from the bags until it is removed by the waste man. *I. Jesudas, India*

Needle Stem Improves Hosiery Slack Course



TENSION DEVICE eases loops between the dial and cylinder to knit a better slack course.

We produce bobby sox with heavy 2x2 cuffs, and our hosiery knitters average 36 doz. 150-needle goods per shift. One of the secrets of this high production is the excellent slack course we give our knitters.

We had some trouble making the slack course on the ribbers because the fabric tended to get out of control when the stitch cams were pulled down.

We overcame this difficulty by fitting a tension device to the machine frame. A latch needle stem is the heart of the device. The hook and latch are removed from the needle, and the stem is ground to a sharp point.

The needle fits into a hole in a pillar that is screwed to the cylinder cam ring close to the stitch-cam position. A screw in the top of the pillar retains the needle and allows for adjustment.

The stem of the needle is then bent until the point presses against the fabric between the needles. This action eases the fabric down between the dial and the cylinder and gives a better control to the fabric.

Best-Kink Award for March

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 200 practical mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answer in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

The best Kink for March, according to TEXTILE WORLD reader-judges, was:

"Regrooving Loom Lays Makes Them Like New"

By E. L. Shaw, Calhoun, S. C.

Mr. Shaw is being sent a check for $25 with the compliments of TEXTILE WORLD.

Tin Can on Drill Prevents Dirty Goods

A DIRT CATCHER prevents the material loosened in drilling ceilings from falling on finished goods. The device is made from a short tin can with a hole punched in the bottom, and adhesive tape secures the can to the chuck.

It is often necessary to drill holes in a ceiling. The drilling will cause particles of ceiling material to fall, a serious matter when finished goods are present.

A dirt catcher built onto an ordinary carpenter's brace can be used to prevent the material falling. The device consists of a shallow tin can with a hole punched through the bottom. The can slides over the twist bit and rests on the chuck.

To prevent the tin can from wobbling and missing some falling particles, apply three pieces of adhesive tape to secure the bottom surface of the can to the chuck.

Where electric power tools are used, the dirt catcher is similar in principle; but it must be secured to the body of the drill, which is stationary. A large hole must be punched in the bottom of the can so it can pass over the chuck. *C. T. Bower, London, England*

Tie New Warps to Old and Eliminate Aprons

We used to use warp aprons to tie new drawn warps in the loom. We always had to look for an apron when we needed one, and it takes a couple of minutes to put a warp apron around the take-up roll of a loom.

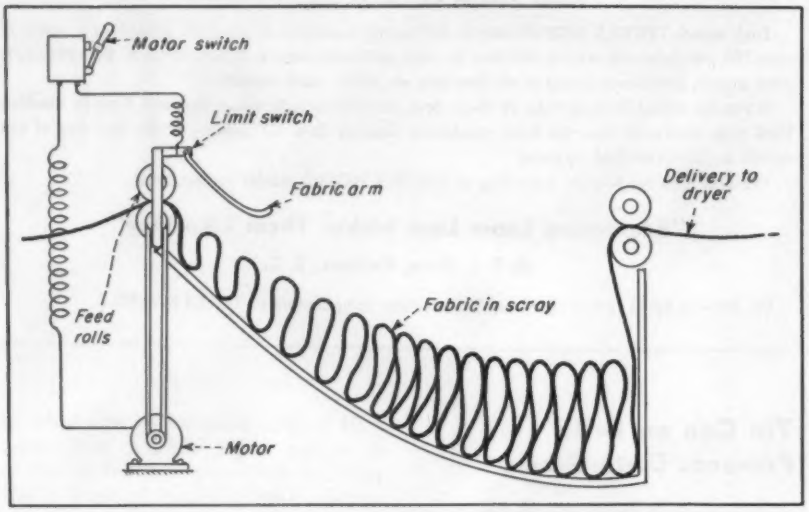
Now, we've quit using warp aprons at all. We tie the new yarn to the waste on the old warp. When a warp runs out, there's always 5 or 6 ft. of warp waste between the fell of the cloth and the warp beam. We turn the pick gear to pull this waste all the way around the take-up roll. Then the waste ends are in the correct position to tie onto the new warp.

This new method takes less time than using regular aprons, we save the cost of the aprons, and looms are back in production sooner.

Potato Determines Positive and Negative Wires

A simple method for determining the positive and negative wires of a d.c. circuit is as follows: Cut a small potato in half, and stick the ends of the wires into the potato. When the current is turned on, the negative wire will cause the potato to bubble while the positive wire will turn green. *Jetweld*

Scray Stop Motion Saves One Man's Labor



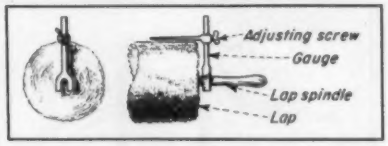
STOP MOTION prevents the scray from overloading. The arm is lifted by the cloth to actuate the switch.

Our fabric dryer is automatically controlled, and we have two scrays to store the fabric before it goes into the dryer. We had one man to watch the scrays to see that they did not become overloaded. We were able to move this man to another job by attaching a stop motion to the scray, and we got better results.

The heart of the stop motion is an electrical switch screwed to the top bracket of the scray feed rolls. A long light metal arm, attached to the switch, is positioned over the scray and bent so that the arm is lifted by the fabric when the scray becomes full of cloth. The switch is connected to the switchboard that controls the drive to the scray feed rolls.

The rolls immediately stop feeding cloth to the scray when the scray becomes full.

Wooden Gauge Measures Picker-Lap Diameters



PICKER-LAP GAUGE helps prevent unduly fluffy laps in summer and undersized laps in winter.

Because of a lack of proper humidification, we find it very difficult to maintain a standard diameter of picker laps. In summer, the cotton fluffs up and the laps are much too large. This condition makes it difficult to put two laps together on the card stands. In the cold season, the laps are so compact that increased strain is put on the friction-rack assembly.

We use a wooden gauge, as illustrated, that makes it easy to measure the diameter of the laps. This, in turn, helps keep the diameter within required limits during the various seasons.

The open end of the gauge is placed on the lap bar holding the finished lap. The adjustable finger, in contact with the outer surface of the completed lap, indicates the lap's exact diameter. The gauge is kept near the lap-weighing scale and is used at regular intervals. *I. Jesudas, India*

$500 for Best Kink in 1955
$25 for Best Kink Each Month

In Addition to Space Payment on Acceptance

Send in your Kink now. There is always a contest going on.

We will polish up your writing and will have an artist make finished drawings. But send in plenty of details so that your Kink can be clearly explained. Be sure your sketch is clear and well labeled, but it need not be a polished job. Best of all, send us a good glossy photograph of it; we will pay you extra if you do and we can use it.

We like ideas for improving machines, new devices that a mill man can build, attachments or methods of merit—anything that will cut costs, improve quality, or help production.

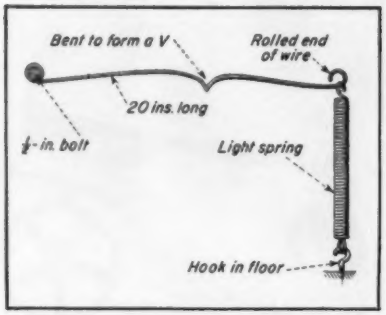
RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1955.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 200 will be asked to select preferred Kinks in each issue. Their votes will select the best Kink, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

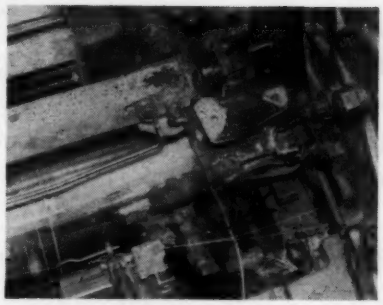
Send Kinks to:

KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.

Stop Jerk-backs With Spring-Loaded Wire



FILLING ENDS are held in line with the temple thread cutter by the V in the spring-steel wire bolted to the breastbeam and extended over the race plate at the end of the reed. Arrow points to location of V.



SPRING-STEEL WIRE is held out of the shuttle path by the light spring fastened to the wire and to a hook in the floor.

We are running a leno-weave scrim cloth on our looms.

The cloth is 37 ins. wide and is woven on a 50-in. loom; consequently, a long space is left between the temple knife and the thread cutter, and the heavy filling hangs down so that it is out of line with the temple knife.

To weave this cloth, we use a crow-hop and have moved the temple away from the cloth so that the inside ends of the temple rolls hold only one warp end.

We have two problems:

1. When the temple knife fails to cut the filling ends, a jerk-back is made.

2. The uncut end pulls the fabric in 3 or 4 ins. at the edge, and a warp end breaks to stop the loom.

The temple often works correctly a hundred times in a row, but the first time it misses trouble occurs.

We solved both problems by making a filling-support wire from spring steel. The wire is rolled at each end to form a ring and is crimped near the center to form a V. The wire is 20 ins. long over-all.

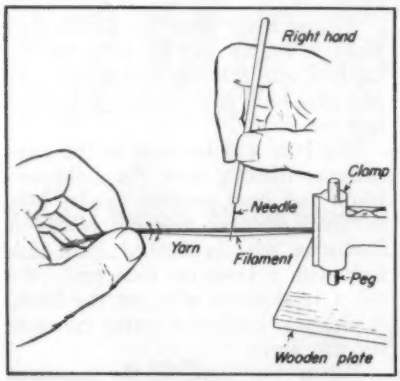
One end of the wire is bolted to the battery-end breastbeam with a ½-in. bolt, and the other end extends between the end of the reed and the back box plate.

A hook is screwed into the weave-room floor directly under the back end of the wire and a light spring is fastened to the rolled end of the spring and the hook in the floor. The spring holds the wire below the shuttle in its flight.

On the first pick after the filling is transferred, the two filling ends to be cut are trapped in the V of the wire, which holds them right in line with the temple thread cutter; the ends are cut on the second pick.

Looms arranged this way are weaving glass filling and saran filling. In one case, saran cloth only 18 ins. wide was woven on a 50-in. loom. *C. M. Whitcher, Midland, Ont.*

Count Fibers With Paper Clamp Holder

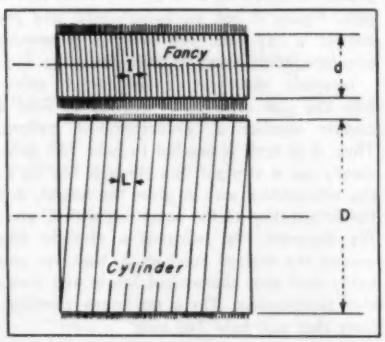


FILAMENTS can be counted on your desk with needle and paper clamps.

Filaments in yarn can be counted with the aid of a paper clamp when you do not wish to take the time or trouble to send the sample to the laboratory.

Fasten a paper clamp to a handy peg or nail, and clip one end of the yarn in its jaws. With the left hand, slowly reverse the twist until the fibers are parallel. Then count the filaments by separating them with a needle. *Hokao Fukaya, Japan.*

Proper Width and Wind Aid Wool-Fancy Operation



FANCY-CLOTHING WIDTH is determined by this ratio—D : d = L : 1. Clothing is wound as shown in the sketch.

The fancy on a woolen or worsted card has always been a difficult roll to set and adjust, but we've found a way of putting on the clothing that helps fancy operation considerably.

We believe that the following ratio is the key to successful fancy operation:

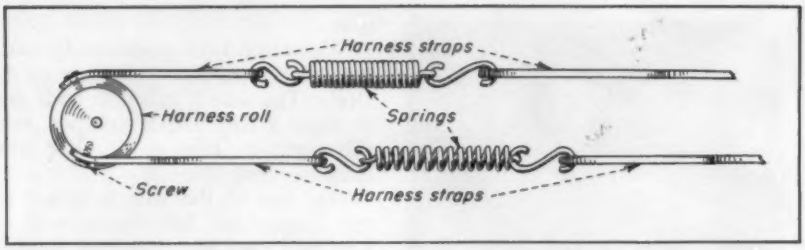
$$\frac{\text{cylinder diameter}}{\text{fancy diameter}} = \frac{\text{cylinder-clothing width}}{\text{fancy-clothing width}}$$

All these factors are, for practical purposes, constant except fancy-clothing width. Our results indicate that it is worthwhile to get the clothing made up specially if it is not available on the market.

One other thing that we have done to reduce neps concerns the winding of the clothing. We start winding the fancy clothing at the left edge if the cylinder clothing was started at the right. In other words, if you stand at the delivery end of the card, the cylinder clothing slopes slightly from right to left and the fancy clothing slopes from left to right.

Our fancies now are operating much better, since they lift up the fibers more positively with fewer neps. *J. Bonsart, Aubervilliers, France.*

We Use Springs for Smooth Harness Action



SPRINGS RELIEVE STRAIN on the harnesses but are strong enough to hold a true warp shed.

We used to have a lot of harness-strap breakage on our X-2 cam looms. The straps also stretched and required frequent harness setting.

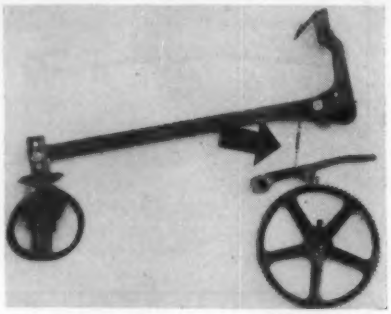
To correct this condition, we added a spring to each harness strap between the roll and the first harness sheave.

One end of the spring hooks into the harness strap that is screwed to the roll, and the other end hooks into the two straps that fasten directly to the harness adjusters at each end of the harness.

The spring stretches a small amount to relieve the strain on the harness, but is strong enough to prevent the harness from sagging.

Since we have been using the springs, we have few strap breakages and no strap stretching. *G. W. Fender, Marion, N. C.*

Low-Count Pick Gear Weaves High-Density Cloth



ONE PICK GEAR does the work of two gears when it's connected to the fork cam follower and operates only half the time.

We sometimes weave fabrics with so many picks per inch that it is hard to adjust the take-up pawl close enough to be divided equally. Wavy cloth results. When we weave fabrics with over 100 ppi., we don't always have the correct pick gear, and we have to cut them. Since these high-pickage fabrics are usually small orders, it's expensive to make gears especially for them.

We've devised a simple way to weave high-pickage fabrics with our ordinary pick gears. For example, the pick gear on a style with 128 ppi. has 64 teeth, or exactly half the teeth of the picks per inch to be woven in the cloth.

To use these gears for double-duty pickage, we connect them to the filling-fork cam follower and arrange the pick-gear hold pawl so that it is lifted half the time.

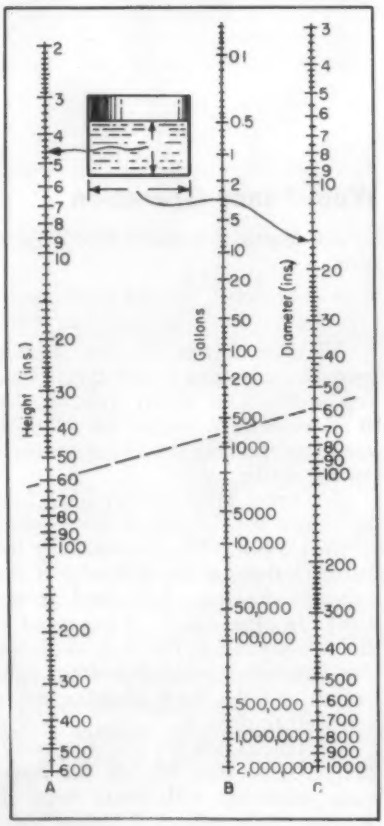
We bore a $\frac{1}{16}$-in. hole in the cam-follower directly over the hold-pawl blade and bore another similar hole in the hold pawl near the blade. A 2-in.-long wire is hooked into each hole with a hook on each end. We use a top-harness wire for the hook. A pick-gear hold-pawl spring connects the two wires.

When the cam on the camshaft raises the cam follower on every second pick of the loom, the pick-gear hold pawl is raised and the pick gear does not take up. Consequently, only half as many picks are put in the cloth.

We bore the holes with a portable electric drill right on the loom so that little loom downtime results.

Advantages are: (1) extra pick gears are not needed, (2) there's no lost time in changing pick gears, (3) pick gears do not have to be set close, and (4) no production is lost. *Carl E. Popper, Kfar Ata, Israel*

How To Find Volume in Vertical Cylindrical Tank



THIS CHART quickly gives the number of gallons in a vertical cylindrical tank. For example, to find the number of gallons in a tank 60 ins. high x 60 ins. in diameter, draw a line across the chart as shown. Connect the 60 ins. on *A* with the 60 ins. on *C*, and the answer is shown on *B* to be very close to 740 gals. Figure it out mathematically, and the answer is 733 gals. The chart is reasonably accurate, considering its wide range.

Inversely, the chart can be used to calculate the size of a tank required to hold a certain number of predetermined gallons. Thus, if a tank is needed to hold 740 gals., simply run a straight line through 740 on *B*; the interesction with *A* gives the height, and the intersection of the same line with *C* gives the diameter. By swinging a straight line around the desired point on *B*, then you can easily find most economical height and diameter combination. There are many combinations that will hold 740 gals.

If you have a tank 60 ins. in diameter and 200 ins. high and want to pour only 740 gals. into it, the same line drawn across this chart shows that if the tank is filled to a height of 60 ins., it will contain 740 gals.

The range of the chart takes care of any tank from 2 ins. to 600 ins. in height and any diameter from 3 ins. to 1,000 ins. The maximum capacity of the largest tank on the chart is 2,000,000 gals. The chart is based on the U. S. Standard of 231 cu. ins. per gal. *W. F. Schaphorst, Newark, N. J.*

Weave-Room Chart Reduces Cloth Seconds

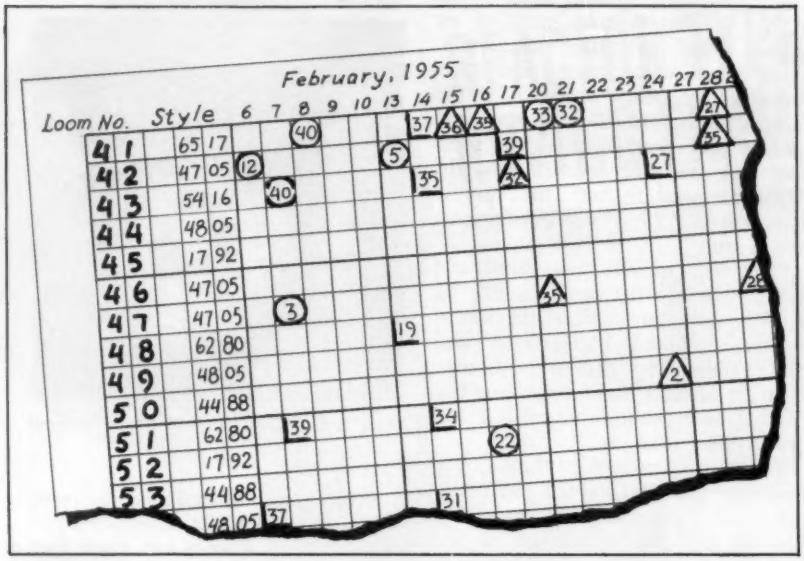


CHART SECTION shows circles used for warp defects, triangles for filling defects, and the letter *L* for mechanical. Each of these symbols is entered in various colors to indicate specific kinds of defects.

To control second-quality cloth in our synthetic-fiber weaving mill, we use a color chart to show seconds. The chart is located in the weave room, and seconds are posted each day by the cloth-room overseer.

The chart is a sheet of 17x22-in. graph paper ruled four squares to the inch. The loomfixers' section numbers are listed across the top of the sheet. Each day of the month is written at the top of each square under the section numbers.

Loom numbers and cloth-style numbers are written down the left margin of the sheet. There's a space to show the daily production and percentages of seconds at the bottom of the sheet.

A key to show cloth defects also is listed at the bottom of the sheet. Defects are divided into three classes: (1) warp, (2) filling, and (3) mechanical.

The symbol for warp stops is a circle. The color of the circle designates the type of warp stop. For example, strip-backs are red; dirty knots are orange, dirty ends are yellow. These colors continue to change for seven defects; and, then, because the colors are exhausted, we continue the code with the top half of the circle one color and the bottom half another until all warp defects are listed.

We follow the same pattern for filling defects, but we use triangles of various colors instead of circles. The letter *L* is used to represent mechanical defects.

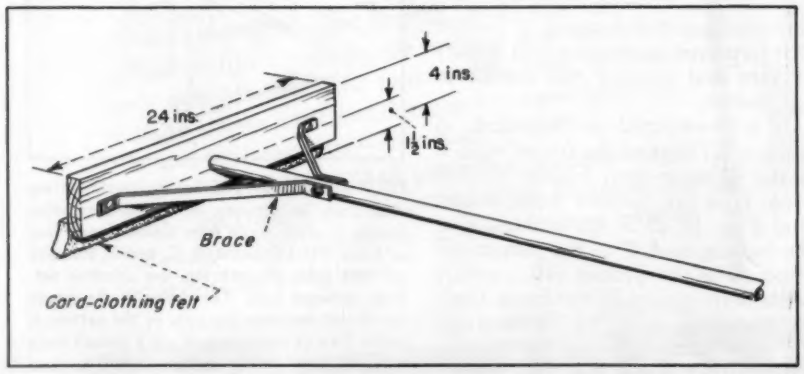
When a loom makes a roll of seconds, say for broken filaments in the warp, a brown circle is placed in a square under the day of the month and across from the correct loom number. The cut number of each roll of seconds is written inside the circle with a fine-point pen. If rolls of cloth contain more than one kind of defect, the symbol for the principal defect is used.

After the first few days the chart is used, a glance at it will show three things: (1) the most prevalent defects for each section, (2) the chronically bad looms, and, (3) from cut numbers, whether two or more succeeding cuts are bad.

Out of 200 looms running for 275 working days, I have found six looms with not more than eight cuts of seconds for each loom and 12 looms with 200 cuts of seconds each.

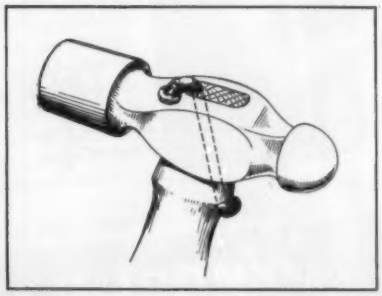
The device is effective for a limited time only. But while the chart is new, it makes loomfixers and weavers conscious of seconds and efficiency. *Ernest R. Beckner, Lexington, N. C.*

Useful Broom Made From Board and Card Clothing



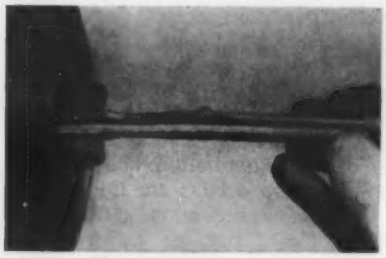
PUSH BROOM for smooth wood or concrete floors can be made from a board, an old handle, and felt card clothing with the wire removed. Attach the handle to the board with braces, and tack or screw the card clothing to the board. When the felt is worn, replace it with a new piece of card-clothing felt. This type of broom has saved us many dollars in broom purchases. *Frank Klopcic, Broadview, Ill.*

Nail Keeps Head On Hammer



A NAIL driven through a ⅛-in. hole drilled diagonally through a hammer handle keeps the head from flying off the hammer and causing injury. Bend both ends of the nail to lock the head to the handle. *Charles H. Willey, Penacook, N. H.*

Keep Spindle Noses Clean With Old Toothbrushes



OLD TOOTHBRUSHES mounted back-to-back make an efficient cleaning tool for lathe spindle-nose assemblies. To clean the internal threads of a chuck backplate, screw the tool through the hole and remove it from the other side of the chuck to keep dirt from being deposited in the threads.

SPINDLE-NOSE THREADS can be kept clean with one of the brushes. Before assembling the cleaned nose and attachment, oil the threads. Since the nose must last the life of the lathe, it should be cleaned frequently. Use gasoline to clean the brushes.

The threaded spindle nose is one of the hardest worked parts of an engine lathe, particularly in maintenance work where chucks and faceplates are frequently changed. If the threads of the attachments or of the spindle nose become dirty, the parts may lock and damage the threads. With damaged threads, the spindle nose will not allow any attachments to run true.

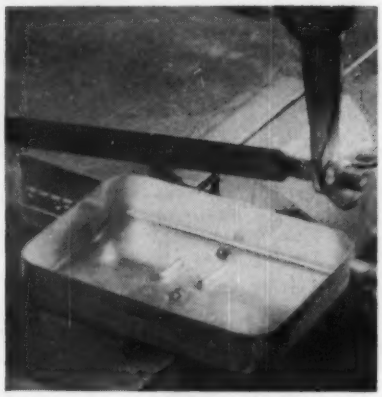
Since the spindle nose must last the life of the lathe, it should be treated with care. Two old toothbrushes mounted back-to-back and held together by two wood screws make an efficient tool for cleaning the internal and external threads of the spindle-nose assembly.

The tool, when screwed through the threaded hole on the chuck backplate, thoroughly cleans the threads. Since the dirt will be redeposited in the threads if the brushes are pulled back through the hole, the tool should be dropped through the other side of the chuck.

Spindle-nose threads can be cleaned by applying one of the brushes to the revolving nose. After being cleaned, the spindle and chuck threads should be oiled before assembly.

The diameter of the brushing tool can be increased by placing wood packing between the backs of the brushes before screwing them together. Oil and dirt can be cleaned from the brushes with kerosene. *C. T. Bower, London, England*

Pieces of Sawed Rod Caught by Vise Tray

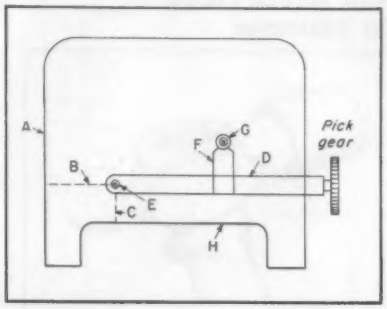


TRAY is fastened to side of vise by a metal clip.

Short pieces of rods, while being sawed in a bench vise, sometimes part suddenly and become lost when they fall to the floor.

A small tray attached to the side of the vise will catch these items. The tray, made from a shallow tin can, is secured to the vise by a strip-metal clip bent to a shape that allows it to fit snugly on the square ram of the bench vise. The tray does not impede the opening and closing of the jaws. *C. T. Bower, London, England*

How To Make Frames Running Time the Same



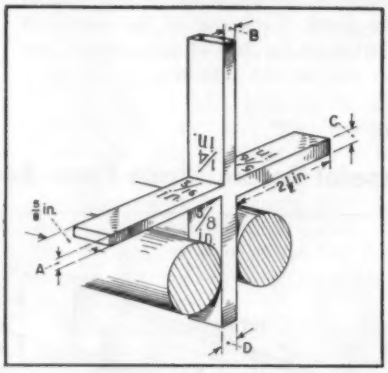
BUILDER MOTION synchronizes doffing time of spinning frames.

Our mill used to have trouble making spinning frames run the same length of time per doff. We overcame this problem by devising a builder that improved production and quality of yarn and boosted the morale of our doffers.

It is constructed as illustrated. *A* is the outer edge of the frame head, *B* is the distance from builder stud *E* to *A*, *C* is the distance from builder stud *E* to *H*, *D* is the builder, *E* is the builder stud, *F* is the pitman-roll stand, *G* is the pitman roll, and *H* is the bottom edge of the frame head. All distances, parts, and settings are the same on each frame.

Put all frames on the same speeds, picks, and lay gear; and they will run the same time per doff. *C. H. Lawson, Burlington Mills, Kings Mountain, N. C.*

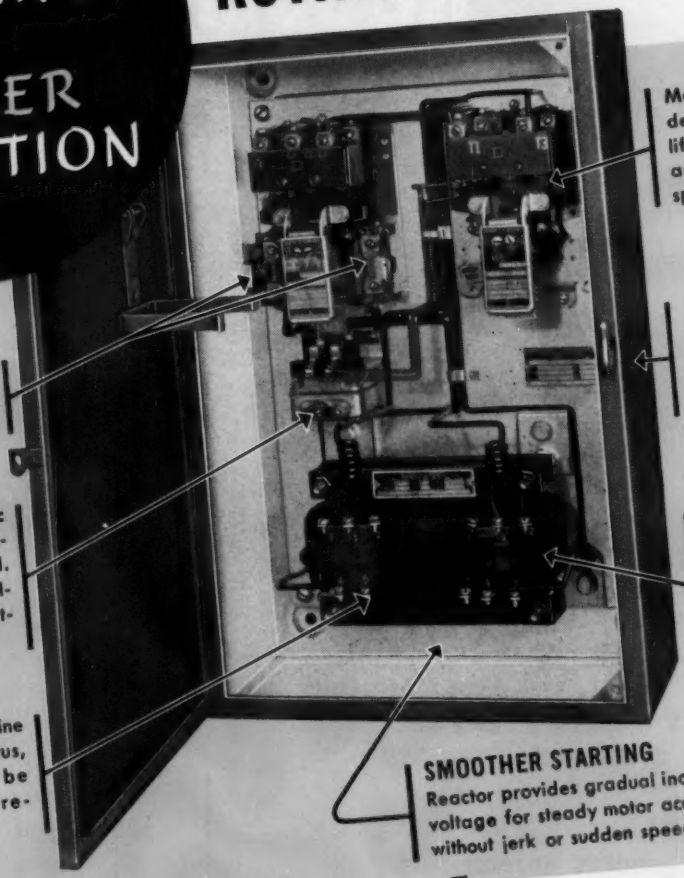
Gauge Sets Steel Rolls



FOUR-LEGGED GAUGE for positively setting steel rolls on drawing, roving, and spinning frames is easily made from pieces of soft iron or brass. Thicknesses *A*, *B*, *C*, and *D*, stamped on both sides of each leg, are common settings between rolls. The shape of the gauge lets it rest between the rolls as the setting is made. Two of these gauges, each placed close to a roll stand in one section, should be used for setting the rolls. The gauge eliminates mistakes commonly made by leaf gauges. Various-sized gauges can be made to cover all settings in the mill. *Hans-W. Cohn, Haifa, Israel.*

FOR SMOOTHER STARTING AND COOLER OPERATION

USE A SQUARE D
REACTOR TYPE ROVING FRAME STARTER



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Adjustable pneumatic timing relay controls duration of starting period. Easily set for proper acceleration . . . makes all starting periods identical.

Reactor taps provide nine different settings. Thus, starting torque can be matched to machine requirements.

NO FIRE HAZARD
Reactor design allows no more than 65° C. rise and permits non-ventilated enclosure. Reactor will not overheat on any duty cycle.

SMOOTHER STARTING
Reactor provides gradual increase of voltage for steady motor acceleration without jerk or sudden speed change.

• Roving frames call for smooth, "soft" starts and the motor control must operate without fire hazard in linty atmospheres. This new reactor type, reduced voltage starter has been designed to meet these textile mill requirements—specifically.

Bulletin 8548 gives the complete story. Write Square D Company, 4041 North Richards St., Milwaukee 12, Wisconsin, or contact your nearby Square D field engineer.

SHIPPER ROD CONTROL STATION
An ideal "running mate" for the new reactor type starter. Flexible design permits conversion to either l.h. or r.h. operation clockwise or counter clockwise rotation. Slotted operating arm for easy adjustment. Snap-action contact mechanism.

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  OR PARTS TO WORK LOOSE
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T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	T-11	T-12	T-13
T-14	T-15	T-16	T-17	T-18	T-19	T-20	T-21	T-22	T-23	T-24	T-25	T-26
T-27	T-28	T-29	T-30	T-31	T-32	T-33	T-34	T-35	T-36	T-37	T-38	T-39
T-40	T-41	T-42	T-43	T-44	T-45	T-46	T-47	T-48	T-49	T-50	T-51	T-52
T-53	T-54	T-55	T-56	T-57	T-58	T-59	T-60	T-61	T-62	T-63	T-64	T-65
T-66	T-67	T-68	T-69	T-70	T-71	T-72	T-73	T-74	T-75	T-76	T-77	T-78
T-79	T-80	T-81	T-82	T-83	T-84	T-85	T-86	T-87	T-88	T-89	T-90	T-91
T-92	T-93	T-94	T-95	T-96	T-97	T-98						

NEW LITERATURE:

F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	F-10	F-11	F-12	F-13
F-14	F-15	F-16	F-17	F-18	F-19	F-20	F-21	F-22	F-23	F-24	F-25	F-26
F-27	F-28	F-29	F-30	F-31	F-32	F-33	F-34	F-35	F-36	F-37	F-38	F-39
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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y. MAY, 1955

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NO REPEATS . . . Listed here for May are current bulletins reviewed by the editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY

High-speed comber—150 nips per min. 8 heads. Removes minimum of noil. Spring-weighted rolls. 4-over-5 roll arrangement. Model J. Whitin Machine Works. (F-1)

Uptwister—Speeds up to 16,000 rpm. Built-in headless-package arbor reduces doffing time 30%. Stop motion operates on 1-gm. tension. Bulletin 501-A. Universal Winding Co. (F-2)

Wet and dry picker—For any fiber, any blend. Widths 18 to 72 ins. Handles long, short, and matted staple lengths. Bulletin 196. C. G. Sargent's Sons Corp. (F-3)

Opening and cleaning — Axi-Feed opens 220 lbs. per hr. Axi-Flow produces to 1,200 lbs. per hr. Removes about 0.3% waste but no spinnable fibers. Whitin Machine Works. (F-4)

Roving frames—For cotton and short-staple synthetics. 24 to 180 spindles up to 12 x 6½ ins. Spring-pressure weighting. Whitin Machine Works. (F-5)

Semidecating machine—Requires only 5 x 9 ft. One-man operation. 74-in. cylinder. Production 50 to 60 pieces in 8 hrs. Mawaco Machine Co. (F-6)

Open equalizing stenter—For woolen, cotton, silk, and rayon fabrics. With pin chain, roller key clip, or combination of both. Alfred Hofmann Needle Works. (F-7)

Overedging machines—For high-speed seaming, hemming, and serging. Up to 6,000 stitches per min. Bulletin 300. Union Special Machine Co. (F-8)

AUXILIARY EQUIPMENT

Lap tester—Laps up to 45 ins. wide can be tested to determine periodic faults, degree of disintegration, and degree of cleaning. Deutscher Spinnereimaschinenbau. (F-9)

Variable-speed drives—Variable-pitch sheave is adjusted by moving both flanges simultaneously with one screw. For 1- to 20-hp. motors. Bulletin 497. T. B. Wood's Sons Co. (F-10)

Ceiling cleaner—Twin fans sweep both sides of track simultaneously. Each fan is independently adjustable in any direction. Louden Machinery Co. (F-11)

Individual card drive—Grinder and stripper attachment built in. Fits into space taken up by present loose and tight pulley. Precision Gear & Machine Co. (F-12)

Analytical pocket pH meter—Self-contained with batteries. 3 x 5⅞ x 2½ ins. Weighs 3 lbs. Readings from 0 to 14. Accuracy to 0.1 pH. Analytical Measurements, Inc. (F-13)

Mountings—For instruments, machinery, bearings, and bushings. To damp vibration and absorb shock. Catalog 701. General Tire Co. (F-14)

Subminiature switches—For actuation by cams and slides and light operating forces. Snap-action precision switches, toggle and push-button switches. Catalog 75. Minneapolis-Honeywell Regulator Co. (F-15)

Stainless-steel drying cylinders — With welded steel heads. 33 and 30 ins. dia. Face measurements of 50 to 144 ins. J. E. Carroll & Co. (F-16)

Package-tying machine — Automatically ties small or large packages in

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1½ secs. Each package tied with double loop nonslip knot. B. H. Bunn Co. (F-17)

Automatic moisture control—Without calibration with electropsychrometer. Continuous measurement of percentage moisture in all textiles. Hunter Controls, Inc. (F-18)

Analytical balance—Single-pan constant-sensitivity balance with ±0.002 milligrams. Bulletin F-5207. Fisher Scientific. (F-19)

Automatic cleaning—For looms and spinning frames. Underframe cleaner improves yarn cleanliness 75%. American Monorail Co. (F-20)

SUPPLIES AND CHEMICALS

Boxes and trucks—Lightweight fibre with steel-compound top rail. Hard maple runners or steel, rubber, or plastic wheel casters. William Bal Corp. (F-21)

Cellophane—For wrapping hosiery, sheets, and other textiles. Air-, dust-, and greaseproof. Takes quick strong heat seals. Bulletin 3116. American Viscose Corp. (F-22)

Vulcanized fibre—Weighs half as much as aluminum. Is tough, resilient, high insulator, high resistance to wear. National Vulcanized Fibre Co. (F-23)

Agilon stretch yarns—May be knitted or woven as singles yarn or in any desirable plies. Basic properties of nylon filament yarn retained. Deering, Milliken Research Trust. (F-24)

Stainless steels—For finishing, dyeing, yarn manufacture, knitting, and weaving. Crucible Steel Co. of America. (F-25)

Fatty chemicals—From vegetable, animal, marine oils, and fats. Sperm oils, fatty alcohols, hydrofol glycerides. Archer, Daniels, Midland Co. (F-26)

Formopon—High-temperature reducing agent. For vat dyes in printing and for stripping dyed fabrics. Rohm & Haas Co. (F-27)

Acrylonitrile—Reacts to form compounds used as solvents and plasticizers. For treating textiles. Bulletin F8381. Union Carbide International Co. (F-28)

Desizing agents—For kier, kettle, or jig desizing. Cotton or spun-rayon fabrics. Rohm & Haas Co. (F-29)

Dyeing synthetic fibers—And blends. In acetate, Acrilan, Dacron, Dynel, nylon, Orlon, saran, and Vicara. General Dyestuff Co. (F-30)

ENGINEERING AND MAINTENANCE

Plant lubrication — Power-operated barrel pumps. Bucket pumps, portable power guns, and transfer pumps. Hand guns and loader pumps. Form 22-240-A. Stewart-Warner Corp. (F-31)

Starting switches—Across-the-line sol-

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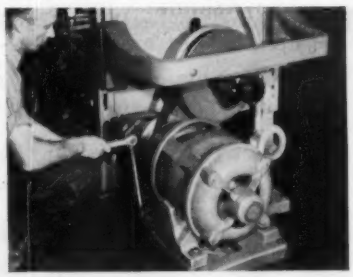

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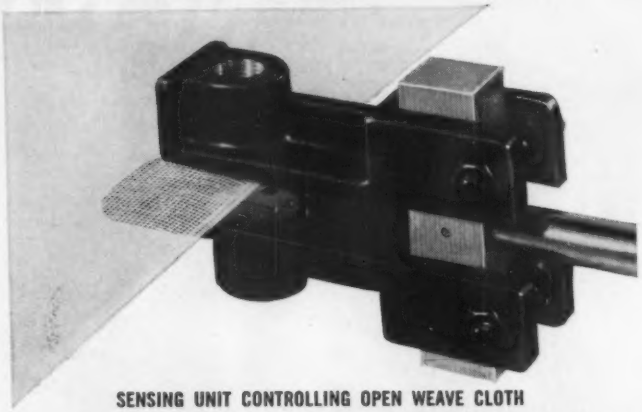
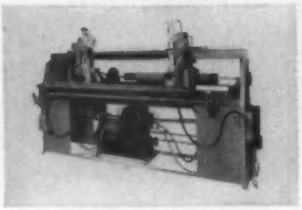


SENSING UNIT CONTROLLING OPEN WEAVE CLOTH



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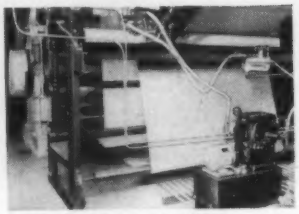

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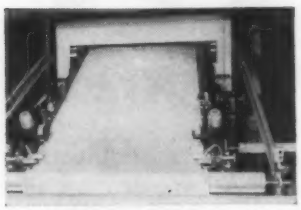

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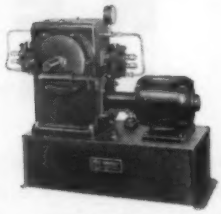

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enoid with front-operated disconnect switch or with circuit breaker instead of switch. Bulletin 712–713. Allen-Bradley Co. **(F-32)**

Pumps—Turbine type, centrifugal, horizontal, or vertical. From 15 gals. per min. to 7,000 gals. per min. Bulletin 111. Aurora Pump Co. **(F-33)**

Roller bearings—Stamped-steel or segmented-steel retainers. Crowned rollers. Catalog TR-854-DC. Rollway Bearing Co., Inc. **(F-34)**

Revolving joints—Rotary swivel joints for slow, continuous rotation. Flexible ball joints to provide side flexibility up to 40°, and swing joints. Catalog 300-A. Barco Mfg. Co. **(F-35)**

Power operators—For throttling-control service. Can develop thrusts to 5,000 lbs. Holds thrust loads to 0.002 in. of stem travel. Bulletin B-50-2. Conoflow Corp. **(F-36)**

Temperature detector—Used with potentiometers for indicators, recorders, and controllers. Two types measure from 800 to 4,000° F. Leeds & Northrop Co. **(F-37)**

Level indicators—To show high and low levels of materials such as cotton fibers in bins, conveyors, and chutes. Convair. **(F-38)**

Chlorine-gas feeders—For treatment of industrial waste. Ref. 840-L29. Builders-Providence, Inc. **(F-39)**

Motor speed controls—With wide speed range. Quick starts and stops. Form 875A. General Radio Co. **(F-40)**

GENERAL

Folding cartons—Various shapes and designs for displaying textile goods. Combined shipping package with display package. Old Dominion Box Co., Inc. **(F-41)**

Calculators—For multiplication and division. One-hand keyboard control. Three-dial proof of every entry. Marchant Calculators, Inc. **(F-42)**

Payroll accounting machine. Automatic multiple-tax computer. 15 classification totals for earnings and deductions. National Cash Register Co. **(F-43)**

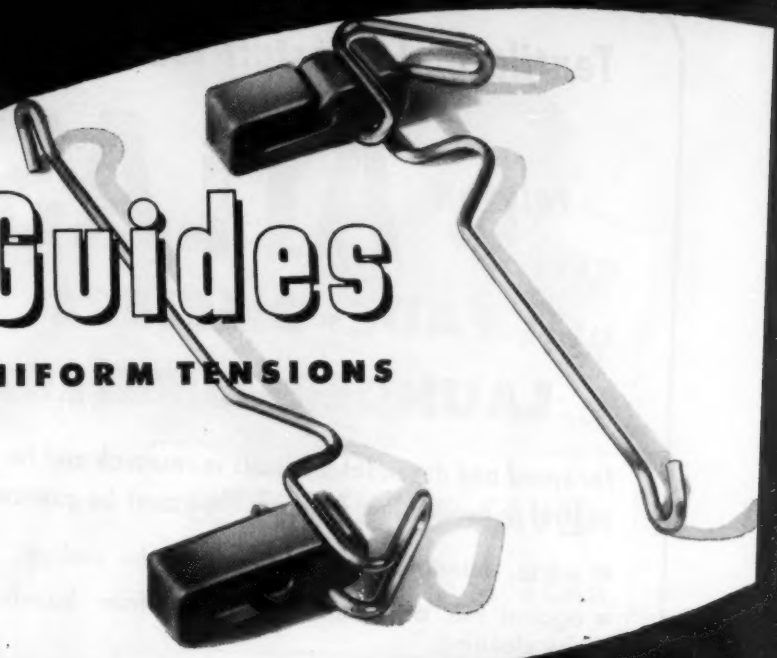
Safety equipment—Eye protection, hats, gloves, carboy pumps, drum pumps, and respiratory devices. General Scientific Equipment Co. **(F-44)**

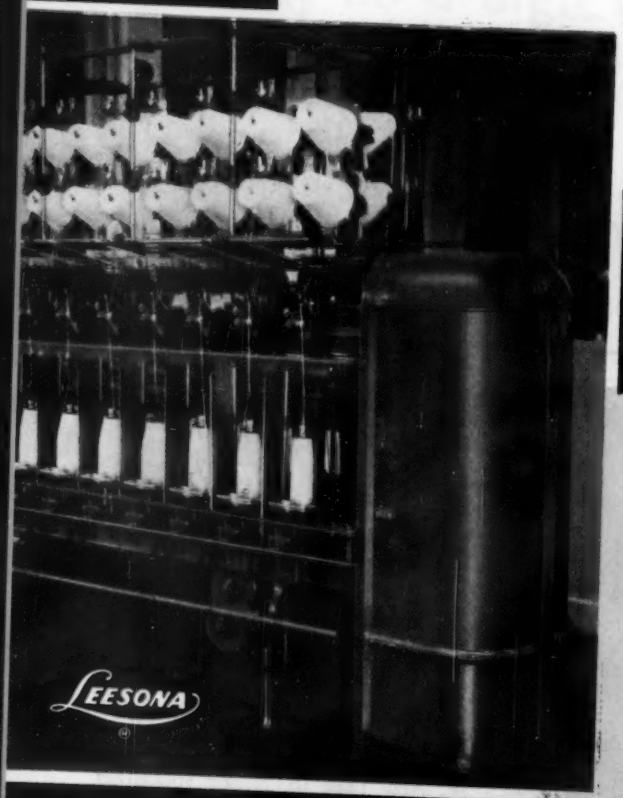
Adjustable steel shelving—Open and closed types. Ledge shelving. With swinging or sliding doors. Standard Pressed Steel Co. **(F-45)**

Commercial financing. Accounts-receivable financing. Old-line factoring, buy-outs, consumer finance, and export and import. A. J. Armstrong Co., Inc. **(F-46)**

ALSiMAG® Doubler Guides

LONGER LIFE • MORE UNIFORM TENSIONS





AlSiMag Doubler Guides give far longer service on Universal Winding Co.'s Model 10 Ring Twister shown above. Feed rolls and spindles on this machine are stopped automatically if break or run-out occurs.

The illustrated metal holders equipped with AlSiMag 193 Doubler Guides (Universal Part GM-5519) can be obtained only from the Universal Winding Co., Providence, R. I.

Yarn quality can often be bettered through the uniform tensions delivered by AlSiMag Doubler Guides. These guides are extremely hard . . . **longer lived** . . . homogeneous (have no surface "skin" to wear through). This prevents yarn damage from undetected guide failure. Gives you lowest guide cost per pound of processed yarn.

These AlSiMag 193 guides are electrical conductors and thus help **control static** when grounded through the metal holder. Normally supplied in **bright finish,** other finishes can be furnished on special order.

If you require a modified or a special design or special finishes, we will be glad to make up test samples to your specifications at reasonable cost.

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Write for information on the new Atlas Scorch Tester for testing damage due to chlorine retention.

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WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS

READER SERVICE Continued

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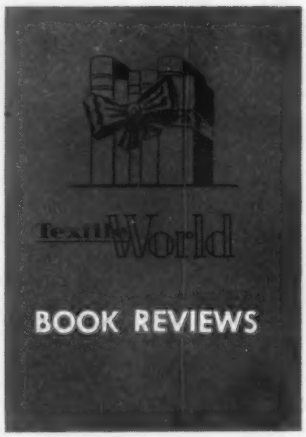

A GUIDE TO MODERN MANAGEMENT METHODS, by Perrin Stryker and the Editors of Fortune; McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y.; 300 pages, $3.50.

A series of articles that appeared in *Fortune* over a period of several years are here expanded and integrated into a book. The title doesn't do credit to the content: the book is a series of highly intelligent essays on what's going on in American management. There are no management methods as such; there are only ideas that executives try to put into action by various ways. A discussion of the ideas, with examples of action, is often more effective than any kind of guide to action.

MECHANICS FOR TEXTILE STUDENTS, By W. A. Hanton; The Tex-

73% CAUSTIC SODA

may be a sign of savings for you!

More and more users, who have been buying 50% caustic soda, are following the trend to 73% concentration. This practice is being advanced and advocated by Columbia-Southern because of the possible savings in delivered cost by converting to the higher concentration.

Naturally, your location and the volume of caustic soda consumed determine the savings realized in switching from 50% to 73% concentration. But, regardless of the amount of caustic soda you use, we suggest you investigate the possible savings in your operation.

The examples of annual savings shown on the sign post are taken from customers' records, selected at random, who converted to 73% caustic soda.

We believe it will pay you to look into the savings of buying 73% rather than 50%. The services of our technical staff are at your disposal. We shall be glad to confer with you, make recommendations, and supply data. Write our Pittsburgh office today.

CUSTOMER "A" SAVED $2,850 THE FIRST YEAR

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CUSTOMER "C" SAVED $3,500 THE FIRST YEAR

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SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
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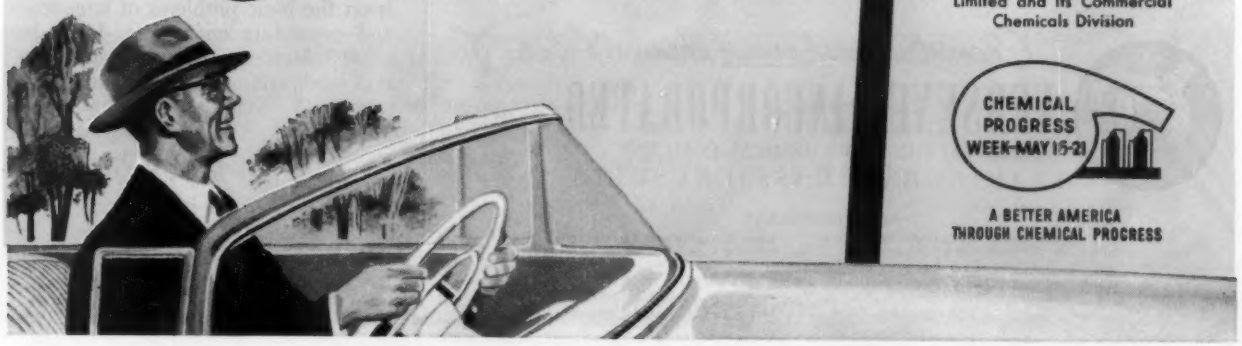
IN CANADA: Standard Chemical Limited and Its Commercial Chemicals Division

CHEMICAL PROGRESS WEEK MAY 15-21

A BETTER AMERICA THROUGH CHEMICAL PROGRESS



WATER • THE *IMPORTANT* CHEMICAL

Few textile plants have access to water so soft that it doesn't interfere with washing, scouring, bleaching, dyeing, finishing or other wet processing operations. This is why all raw process water must be regarded as an *active chemical* until proven otherwise. Versene makes the active ingredients in process water behave and become inert. It completely and permanently softens water without forming precipitates by inactivating any calcium, magnesium, iron, copper, lead or other metal contaminants which may be present.

VERSENE • ECONOMY WITH EFFICIENCY

Textile manufacturers and processors now using the Versenes find them highly profitable in one or more wet operations. Let us show you how they can save *you* money.

VERSENE • A COMPLETE LINE

A complete line of basic Versene products and compounds permits chelation throughout the entire pH range. Practically any metallic contaminant may be "eliminated" with the *right* Versene. All Versene products are exceptionally stable at high temperatures throughout the pH range. Quality is unduplicated and uniformity of chelating power is guaranteed. Samples on request. Ask for Technical Bulletin No. 2. Chemical Counsel when needed.

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Van Waters & Rogers, Inc., Seattle, Wash. & Portland, Ore.
Braun Corporation, Los Angeles, California
George Mann & Co., Inc., 251 Fox Point Blvd., Providence, R. I.
European Manufacturing Agent:
Rexolinfabriken Aktiebolag, Helsingborg, Sweden

tile Institute, 10 Blackfriars St., Manchester 3, England; 330 pages, 25 shillings ($3.50).

The intention of this book is to provide an introduction to mechanics for textile students. The classic concepts of mechanics—motion, velocity, force, friction, etc.—are applied specifically to textile machinery; and the result is a happy combination of book learning and textile problems. For a mill man who knows textile machinery and wants a better education, this book provides an excellent classroom.

The book is divided into three parts: The Study of Movement, Statics, and Applications of Force in Causing Motion. It has over 150 diagrams and a detailed index.

PRINCIPLES OF EMULSION TECHNOLOGY, by Paul Becker; Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y.; 150 pages, $2.95.

Mr. Becker is senior project chemist for Colgate-Palmolive Co., and this book is the fifth book in a series called Pilot Books. The Pilot Books are small in size and comparatively short, concentrate on essential information, and are written in language understandable to the nonexpert. In this book on emulsions, the assumption is that you have studied chemistry and now want to know more about theoretical and applied emulsions.

Surface activity, equipment, testing, formulation, and demulsification are all covered.

MANAGEMENT OF EXPANDING ENTERPRISES, by William H. Newman and James P. Logan; Columbia University Press, New York, N. Y.; 125 pages, $2.75.

A series of round-table discussions was held with 21 leaders from the business and professional world participating; this book is a report on the round table. The center of attention is on the basic problems of large-scale and expanding enterprises: how size affects planning, morale, organization, staff work, communications, flexibility, etc.

The book is a composite of views expressed in the discussions.

WHAT MAKES AN EXECUTIVE, Report of a Round Table on Executive Potential and Performance; Co-

★ **FOR BETTER WINDING OF SYNTHETIC YARNS**

★ **LONGER BOBBIN LIFE**

★ **LESS SPINDLE WEAR**

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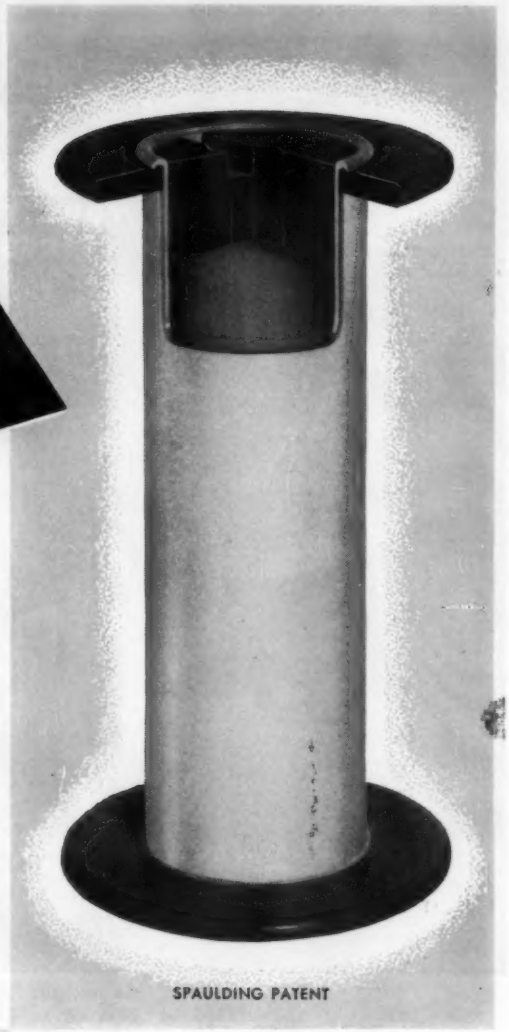


SPAULDING PATENT

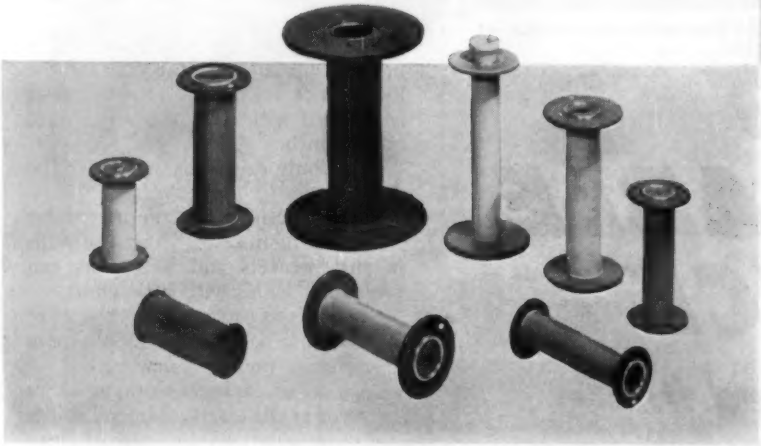
DYNAMICALLY BALANCED for smooth, vibration-free operation that means even loading, less wear and tear on machines.

EXTREMELY STRONG to resist the crushing force of synthetic yarns. Bobbins are constructed of SPAULDITE Laminated Phenolic Plastic and sturdy aluminum tubing, with the aluminum tube located to provide as large a diameter of head connection as possible.

MADE WITHOUT SCREWS, Spaulding Bobbins will not become loose or fall apart in service.

WEAR-RESISTANT precision bearings and heads of rigid high impact strength material assure long life.

SNAG-FREE FINISH prevents damage to the most delicate yarns.



In addition to bobbins, Spaulding makes many other products for the textile industry, including HEADLESS PACKAGE TUBES, TAKE-UP TUBES, SIZING TUBES, KELLY ROLLS, LAP ROLLS, RECEPTACLES and PIRN CAPS and REDRAW CAPS for headless package tubes, sizing tubes, take-up bobbins and pirn tubes. Ask your nearest Spaulding Branch Sales Office for full information.

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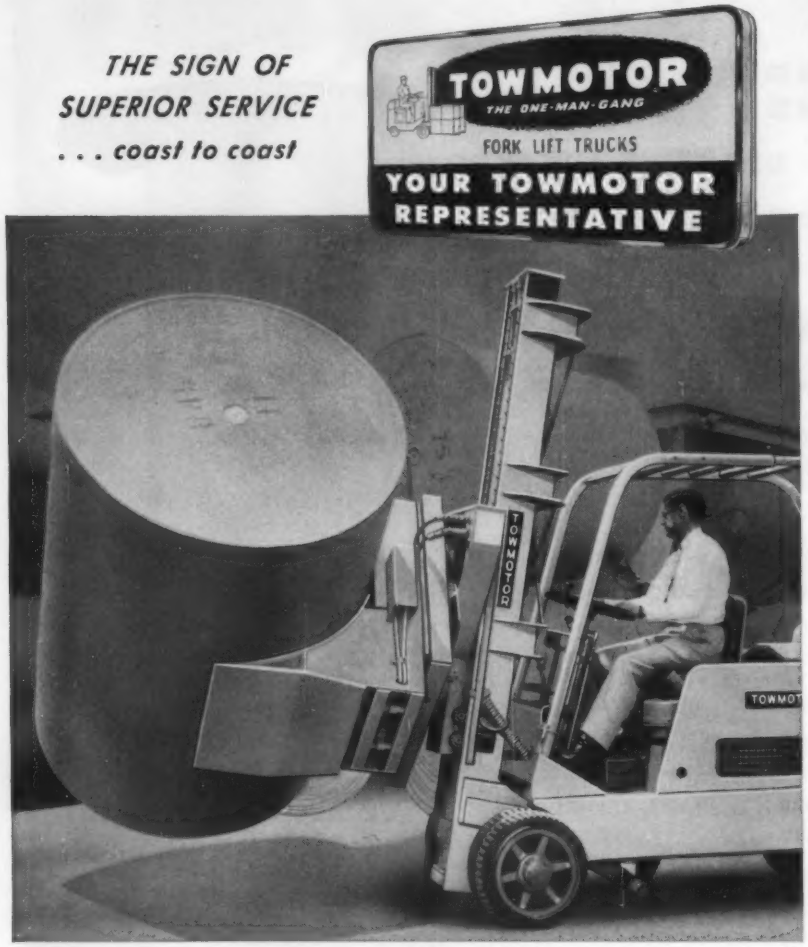

New TOWMOTOR Roll Clamp upending multi-ton paper roll

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SERVICE
when you need it!

Every Towmotor fork lift truck is designed to stay on the job longer. However, abuse, or years of service eventually make repairs necessary. That is when Towmotor's easy service accessibility pays off. Each Towmotor Representative is a materials handling specialist who backs up the Towmotors he sells with the most efficient and complete service facilities in the field. Talk to him about the advantages of Towmotor 3-way Service. See your Towmotor Representative today, and write for complete service information. TOWMOTOR CORPORATION, DIV. 2205, 1226 E. 152nd St., Cleveland 10, Ohio.

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CALL YOUR LOCAL TOWMOTOR
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TOWMOTOR FORK LIFT TRUCKS AND TRACTORS SINCE 1919

lumbia University Press, New York, N. Y.; 179 pages, $3.50.

What happens when 18 men from various backgrounds get together for a series of discussions on executives? You get a lot of different opinions, and the editors of this report have included many quotations of the points of view. The participants included leaders with experience in business, science psychiatry, and the church. They discussed childhood experiences, college education, testing and rating, personal qualities, and training. No attempt was made to draw up any set of rules, but a lot of provocative ideas were expressed.

Weave-Room Cleaning

CONTINUED FROM PAGE 99

clean floors and walls, but 70% of their time is spent cleaning looms. Looms are cleaned at each warp-out, both tie-backs and empty looms. Two men working together clean a tie-back or empty loom in about 30 mins.

"Overhead surfaces are cleaned by maintenance employees every six months at the same time fluorescent lighting fixtures are cleaned. The fixture is also cleaned each time a tube is replaced in one.

"Weavers wipe off the bottom 5 ft. of the walls at their looms once each week.

"Our floors are concrete, and oil is mopped off them at the ends of the looms once a week. The entire floor is mopped with soap and water once each month.

"Our only drip pans are under the dobbies.

"Wash basins with running water are placed at intervals along the walls so that weavers and loomfixers can wash their hands with little effort.

"Loomfixers return all worn or broken loom parts to the supply room to exchange them for new parts.

"On certain styles of cloth, we clean the reeds at cut marks. Mineral spirits and other solutions are used to clean the reeds.

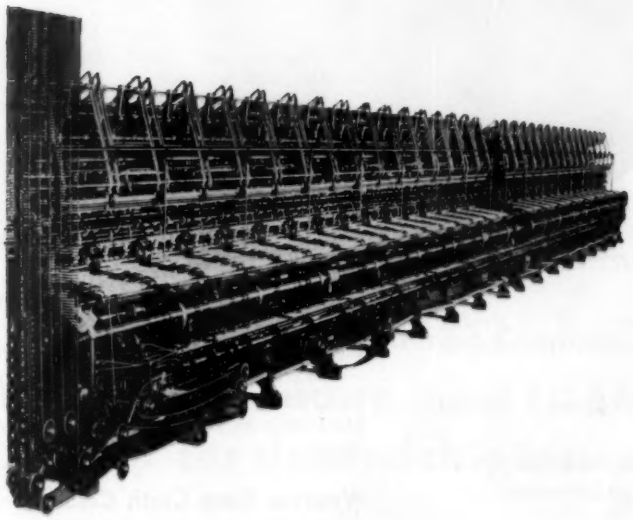
How To Clean Harnesses

"Harnesses, reeds, and drop wires removed from the looms are thorough cleaned in the drawing-in room. The parts are soaked in a vat of solvent until they're clean. Then they're blown off with compressed air to dry them.

"Next, they're placed in another vat containing hardwood sawdust. The sawdust is heated with steam pipes in the bottom of the vat. The sawdust dries the parts thoroughly and

TORRINGTON NEEDLES

help insure the precision performance of the Lieberknecht Full-Fashioned Machine



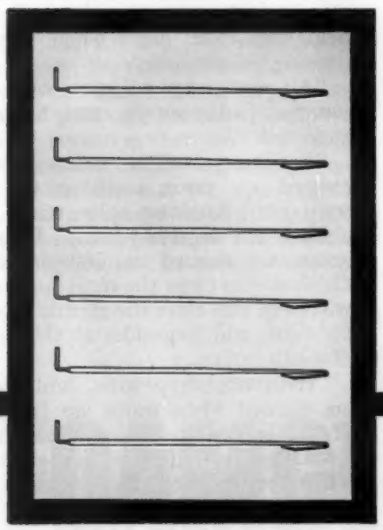
THE TORRINGTON COMPANY
Torrington, Conn., U.S.A.
Established 1866

WHERE NEEDLE PERFECTION is essential to smooth operation. Built in all gauges from 39 to 75, the Lieberknecht 32-Section Full-Fashioned Knitting Machine produces top-quality hosiery fabric, and its operation is almost completely automatic.

That's why needle quality and needle performance are so important. "Torrington needles are used almost exclusively in all of our machines, and we have found them to be the most satisfactory needles obtainable," says Karl Lieberknecht, Inc. "We find they contribute to a fine quality fabric of unusual sheerness and strength."

Users of all types of precision knitting machines have found that Torrington Needles offer the quality features that aid considerably in obtaining high production and higher profits. These are: precision construction, controlled temper and smooth finish.

Your knitting operations can likewise benefit from the superior features of Torrington Needles. We shall be glad to help you select the type of needle that exactly meets your requirements, and to assist you with any needle problems. Call or write your nearest Torrington office for prompt service.



There's a **TORRINGTON NEEDLE**

for every machine...for every type of knitting!

FOR RESEARCH LABORATORIES . . .
UNIVERSITY LABS . . . PILOT PLANTS

THE NEW **Portable**
LAB DRYER
by SARGENT

FOR
OUTRIGHT
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or on a
SENSIBLE
RENTAL-PURCHASE
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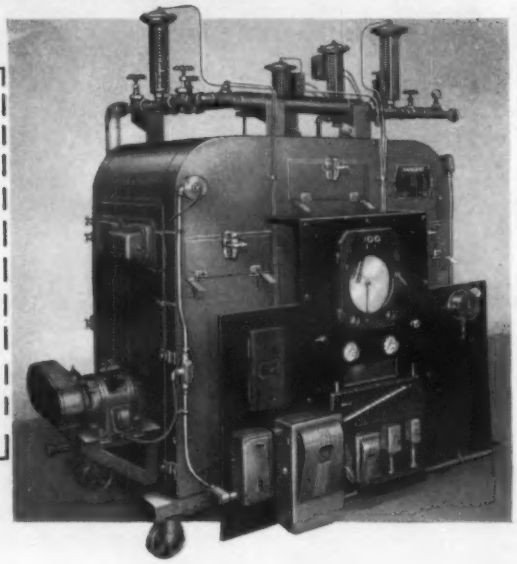


FULL SIZE — 8′-6″ high x 8′-0″ wide x 6′-7″ deep.

MOBILE — mounted on heavy-duty ball-bearing casters that lock securely into position.

FLEXIBLE, VERSATILE — for steam or electrical heating of air stream. Material tested in trays, suspended from poles, on rolls, or any combination.

INSTRUMENTED FULLY and completely — ready to go to work for you without delay.

Modeled on the famous Sargent-developed, designed and built, research dryer used in Sargent's own drying research laboratory.

Here, at last, is a dryer to help you solve those constantly recurring and ever different drying problems of new fibres, new blends, new fabrics. Simple to operate. Accurate at every setting. Fantastically flexible in its ability to reproduce any combination of factors influencing drying of stock. Automatic or manual operation.

We believe the new portable lab dryer is equipped with more positive controls and a more simplified method of changing drying conditions within the machine, than ever before offered.

A telephone call to the nearest Sargent representative, or direct to us, will produce any additional information you want—AND fast action!

C. G. SARGENT'S SONS CORPORATION
INDUSTRIAL DRYERS DIVISION
Graniteville, SINCE 1852 Massachusetts

CINCINNATI 15 — A. L. Merrifield, 730 Brooks Avenue
CHARLOTTE, N.C. — W. S. Anderson, Carolina Specialty Co.
PHILADELPHIA 19 — F. E. Wasson, 519 Murdock Road
TORONTO, CANADA — Hugh Williams, 47 Colburn Street

also cleans them further.

"When the parts are removed from the sawdust, they're blown off again with compressed air. Then they're so clean they won't soil a clean handkerchief when it's rubbed hard across them.

"The sawdust is never changed; more is added when it's needed.

"We have an air-changing system; the relative humidity is kept at 68%, and the temperature is held at 84° F."

Mill No. 2—"We weave rayon, nylon, acetate, and Dacron on 396 C&K S-6 looms.

"All cleaning is done by two loom cleaners on each of the three shifts. Empty looms are cleaned so thoroughly they're like new ones when the cleaning is completed. Tie-backs are cleaned after the loom beam is removed. Looms are cleaned so often and so thoroughly that two men can clean both empty looms and tie-backs in 20 to 22 mins.

"Loom cleaners sweep the floor at the end of each shift with hinged bristle push brooms.

"Light fixtures are cleaned once each month by shop men.

"Walls and overhead surfaces are brushed down once a year by shop men during the vacation shutdown. Lights are cleaned at the same time.

"We have hardwood floors and keep them in good condition by resealing them with the Tennant method every six months. Loom cleaners mop under each loom once each week.

"We have full-size rolled-edge drip pans under each loom, and they're a great help in keeping the entire floor clean.

Weavers Keep Cloth Clean

"Lavatories in the weave room are used by weavers and loomfixers to keep their hands clean. Soap and towels are located at each lavatory. Weavers also use French chalk to help keep cloth clean when they're drawing in warp ends.

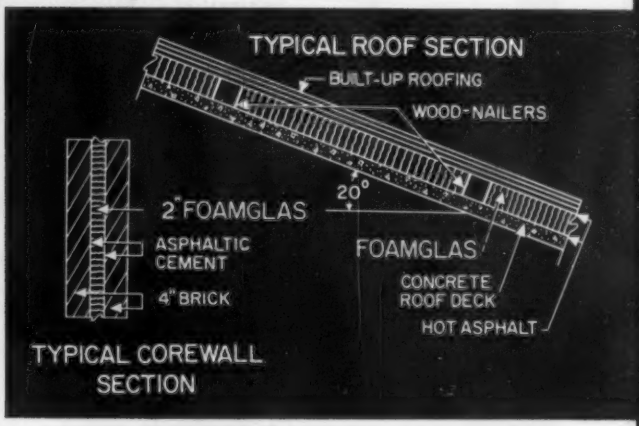
"All parts taken off the looms are returned to the supply room for new parts.

"Reeds and drop wires aren't cleaned on rayon cloth except at warp-outs. Reeds on nylon warps are cleaned at every 100-yd. cut. Dacron warps are cleaned at 300-yd. cuts. Cloth doffers clean the reeds and drop wires and also clean the shuttle boxes, lay ends, and loomsides at the ends of cloth rollers.

"Harnesses, drop wires, and reeds are cleaned when warps are cut out of the looms by soaking them in a 24-in.-deep vat filled with a solvent. Then they're dried off.

"Weavers and loomfixers do no

At left, FOAMGLAS was embedded in hot bitumen between wood nailing strips anchored to concrete deck. Roofing felts were laid parallel with roof slope. Above, workman applies FOAMGLAS with mastic to exterior wall in corewall construction at Augusta mill.



Bates Manufacturing Company, Lewiston, Maine, reports

"We've used and re-used FOAMGLAS because it stays dry for dependable insulating performance"

"We discovered in 1944 that the organic insulation then in place on sawtooth roof monitors at our Lewiston, Maine, mill had failed," reports Bates Manufacturing Company. "Moisture absorption had destroyed its insulating efficiency. We replaced the old insulation with FOAMGLAS because its sealed glass cells are waterproof. We knew insulation that stays dry could be depended on for long-lasting insulating performance. We have had no moisture absorption problem since then . . . and insulation maintenance and replacement have been virtually eliminated. We discovered, too, that the light weight and high strength of FOAMGLAS made it easy for us to secure a satisfactory application on the sloping roof monitors."

Bates' report continues: "Because of its excellent seven-year performance record at Lewiston, FOAMGLAS was used again in 1951 to insulate core walls of a new weave room at our Edwards Division mill in Augusta, Maine. Here again, dependable insulating efficiency was most important . . . to help us maintain constant temperature (70°) and humidity (65%) in the weave room. In a climate where winter temperatures often remain at 10° F., we depend on the sealed cells of FOAMGLAS to guard us against damaging insulation failure."

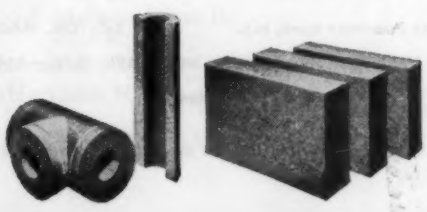
Why not follow the lead of Bates and other leaders in the textile industry? Take advantage of the many benefits you'll get when you insulate with FOAMGLAS, the strong, rigid insulation that stays dry, is fireproof and acid-proof. Send today for a sample and our detailed booklet describing the use of FOAMGLAS to insulate roofs, walls, ceilings and floors.

PITTSBURGH CORNING CORPORATION

Dept. AH-55, One Gateway Center • Pittsburgh 22, Pa.

FOAMGLAS®

the cellular, stay-dry insulation



PITTSBURGH PC CORNING

Pittsburgh Corning also makes PC Glass Blocks

Here's timely information on the newest methods and equipment for textile finishing operations. In this new bulletin we treat Hot Air Slashers, Tenter Dryers, Loop Dryers, Pre-Dryers, Roll Dryers, Wool Carbonizers, and Special Drying as well as Tire Cord, Foam Rubber and Latex Drying Ovens.

Write for BULLETIN 31W *and copy will be sent promptly.*

In addition to the benefit of ROSS' 34 years' experience in this field, ROSS customers have at their command the most extensive, modern manufacturing and laboratory facilities to insure buyer satisfaction. You can rely upon recommendations by ROSS.

J. O. ROSS ENGINEERING CORPORATION

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CHICAGO, ILL.—201 North Wells Street NEW YORK, N. Y.—444 Madison Avenue
Detroit Los Angeles Seattle

cleaning at all. Magazine hands brush off one-third of their magazines each shift. Warp hangers clean up all their equipment when they finish tying on a warp.

"Our weave room is completely air conditioned. The temperature is 80 to 82° F., and the relative humidity is 60 to 62%."

Mill No. 3—"We have 600 XD looms and 50 C&K 4x1 S-6 looms. We're weaving dope-dyed fabrics, nylons, Dacrons, acetates, and rayons.

"We have two loom cleaners and a sweeper on each shift. Looms are cleaned with a solvent, rags, and brushes. Tie-backs are cleaned by two men in 20 mins.; empty looms require about 30 mins. No compressed air is used for any cleaning.

"An employee under the supervision of the master mechanic cleans lighting fixtures once a month.

"A maintenance-department employee mops down the side walls with a dry mop every three or four weeks.

Floors Are Mopped Frequently

"Our floors are concrete and are wet-mopped by a maintenance-department worker every two days. They're waxed every two to three months.

"We have metal drip pans under all our dobbies and harness sheaves on both Draper and C&K looms. The C&K looms have drip pans with sides under the picking motions on both ends of the looms. The pans are removed once a week, and the oil is wiped out.

"Each weaver has a bucket of water at his looms; no other person uses the bucket. Rolls of cloth towels in a dispenser are provided at each bucket.

"Buckets are located on posts at each loomfixer's workbench to receive pickers and other parts to be discarded. Metal parts are returned to the supply room in exchange for new parts.

"Reeds and drop wires are cleaned thoroughly at each cut mark. The drop wires are separated by opening the warp at 3-in. intervals, and a rag wet with Varsol is used to clean the stop-motion contact bars. The reed is cleaned with Varsol, brushes, and rags.

"Used drop-wires, harnesses, and reeds are taken to the boiler room when patterns are cut out and are cleaned with Varsol. Then they're steam-cleaned. Heddles are removed from harness frames before the heddles are placed under the steam. The frames are cleaned with Varsol only to prevent warping them.

"Batteryhands clean all their thread guides every shift. The waste is separated by color and yarn type and is

But, Mr. Woolen Manufacturer,

You don't have to "live with" STATIC

Now with NOPCOSTAT 56-C you will discover a wool oil with "built-in" anti-static properties PLUS detergency for easiest scouring

NOPCO

PLANTS: Harrison, N. J.
Cedartown, Ga. • Richmond, Calif.

Many companies often make extravagant claims for their wool oils. Nopco doesn't believe in extravagant claims. But if you are one of the many woolen manufacturers who have been assuming that static is something you just have to live with—since you can't eliminate it economically—we're sure you have everything to gain by trying our new wool oil, Nopcostat 56-C.

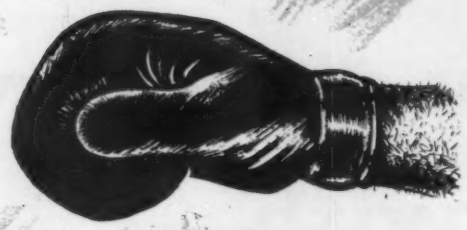
Nopcostat 56-C is a wool oil about which we are, truthfully, extremely optimistic. The combination of built-in anti-static qualities for trouble free running *PLUS* supplemental detergent action for optimum finishing and fine, clean fabrics put Nopcostat 56-C in a class by itself.

But what we *say* about Nopcostat 56-C won't really convince you. One trial in your mill will, we are sure, prove to you that our great enthusiasm for this new wool oil is well deserved. Make us prove it!

Nopco Chemical Co.,
310 Fuller St., Harrison, N. J.

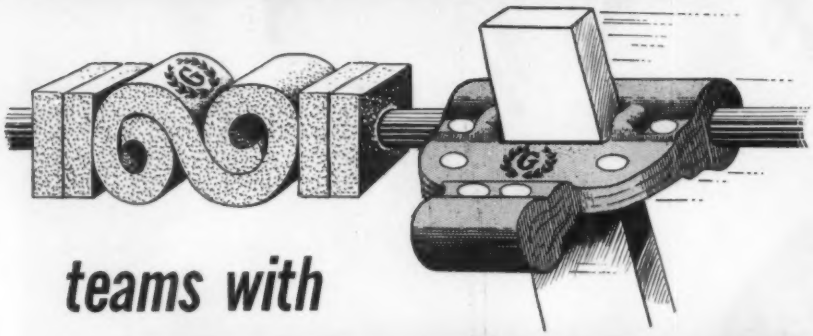
For more information, write direct or use Reader-Service post card.

absorb "SOCK"



in loom "SHOCK ZONE"

NEW GARLAND BUNTER



teams with

GARLAND LOOM PICKER

FOR A WINNING "ONE-TWO" COMBINATION

The NEW GARLAND SPONGE LEATHER BUNTER, never before advertised, has already received sensational acclaim. To pretest this most modern Bunter, Garland sent samples to selected mills. Trial orders soon resulted in repeat orders for hundreds. Here's proof that there's no finer Bunter available. "Takes" shock better. Lasts longer. Is more economical. Now available for the first time in unlimited quantities. See for yourself by writing today for complete information.

Garland's long-time favorite Genuine Rawhide Loom Picker adapts perfectly to the Sponge Leather Bunter. Gives better service with reinforced stick hole . . . stronger picker head . . . pressure molding . . . improved spindle hole . . . toughest material available.

Garland MANUFACTURING COMPANY

50 WATER ST • SACO • MAINE

placed in bags on building columns.

"We have refrigerated air conditioning and maintain 70% r.h. and a temperature of 85° F."

Cleaning Methods Aren't Fancy

Mill No. 4—"We have 277 C&K S-6 looms weaving nylon, rayon, and Dacron.

"We use only one loom cleaner on each shift. Cleaning time for both tie-backs and empty looms is 1 hr. In addition to cleaning looms, the loom cleaner sweeps, takes up bobbins, etc.

"Fluorescent lighting fixtures are cleaned once a year during the vacation shutdown. Machine-shop employees take out the tubes and clean the reflectors at that time. Walls and overhead areas are cleaned when the lights are cleaned.

"Our concrete floors are also cleaned once each year at the vacation shutdown. The floors are cleaned with Varsol; and then they're cleaned with soap and water. Finally, they're given a coat of concrete sealer.

"A general-job man on each shift mops under the looms with a mop wet with Varsol once each week.

"Drip pans are used under harness sheaves on part of our looms. All dobbies are equipped with drip pans.

"Each weaver has a little stand to hold water, soap, and towels at his looms to wash his hands.

"Loom parts to be discarded by loomfixers are thrown out the door into a scrap bin.

"On some qualities of rayon, reeds and drop wires are cleaned at every cut mark; ordinarily, they're cleaned at every third cut mark. Dacron warps are cleaned at every cut mark. Both reeds and drop wires are washed with a solvent.

"Harnesses, reeds, and drop wires out of looms are cleaned in a vat of solvent with a brush. Then they're dried with rags.

Magazine Hands Do Their Part

"Magazine hands dust off their magazines with a brush; they clean a third of their job each day and complete all looms every third day. They also empty the vacuum cylinder on one-third of their looms each day.

"Our weave room is not air conditioned. We hold the relative humidity to 65%. In the winter, our weave-room temperature is 85° F.; in the summer, we try to hold it below 90° F."

Mill No. 5—"We weave dope-dyed fabrics, nylon, Dacron, acetate, and rayon cloth on 480 C&K S-3 looms.

"Two loom cleaners are used on each shift. They use Varsol, brushes, and rags to clean the looms. With both men working together, tie-backs

2 Approaches to Economy

HARTFORD PRE-LUBRICATED BALL-BEARING SPINDLES

Wool Spinning Spindle
With built-in eccentric plumbing — its spring clutch pads provide positive drive for large-capacity paper tubes.

Spinning Spindle
Split-Base Type.

Filling Spindle
Split-Base Type Top Drive.

Twister Spindle
With built-in eccentric plumbing — features height adjustment of bobbin seat.

● All Hartford spindles feature two rubber-mounted ball bearings — of the pre-packed type requiring no lubrication for an estimated five years.

● These bearings eliminate an important cause of oil mist — also permit higher r.p.m. Hence you produce cleaner yarn, faster.

Hartford spindles are produced in two economical types:

1) Spindles with an exclusive, eccentric-sleeve adjustment — so they can be kept plumb. The adjusting is done while the frame is running. High production is maintained.
2) Spindles with our split-base design — which drastically reduces the first cost.

100% American Engineered, Manufactured and Serviced

It will pay you to investigate Hartford spindles thoroughly. Simply write now for our literature that furnishes detailed technical data.

THE HARTFORD MACHINE SCREW COMPANY

HARTFORD, CONN. SOUTHERN DIV. ROUTE 3, BOX 314, GREENVILLE, S. C.

DO YOUR SCALES ADD UP TO A *Weighing System?*

TODAY IT PAYS TO TAKE A PLANT-WIDE LOOK AT WEIGHING

Do you have the *right* scales in the *right* places? A modern *Weighing System* works hand in hand with your accounting *system* and makes a *big* difference in helping you win your war on costs. Weight records that originate at scales flow to the accounting areas and directly affect costs, inventories and customer billings. Weighing errors cannot be corrected later—weights must be right the *first* time. That's why it's more than ever important to think of weighing not in terms of isolated scales, but as a vital part of your overall cost-control system.

If you would like to explore this in relation to your plant, why not drop us a line today? No obligation, of course.
Ask about the "weighing system plan."
Toledo Scale Company,
Toledo 1, Ohio.

PRINTED WEIGHTS
New Toledo Printweigh Scales meet your needs today for *closer cost control!* Stop human errors in reading, remembering, recording . . . provide accurately printed weights with split-second speed . . . *accurately* recorded!

SERVICE
Factory-Trained
200 Cities

TOLEDO®

HEADQUARTERS FOR SCALES

are cleaned in 20 to 30 mins.; empty looms require 30 to 40 mins. Tie-backs are cleaned while the loom beam is out.

"The loom cleaners oil all main bearings, pick rolls, etc. while the warps are out. They also sweep the floor one to three times per shift; the frequency of sweeping depends on the number of warps that run out per shift.

"Compressed air is used to blow out the harnesses on Dacron leno fabrics. We also use air to blow a lubricating and cleaning fluid through the harnesses at every cut mark on these Dacrons.

"Machine-shop employees clean the lighting fixtures with dry rags as the fixtures become soiled.

"Two shop men clean the walls and overhead with dry mops every six months.

"Our hardwood floors are painted gray under the looms. A shop employee mops under the looms once each week. Floors are cleaned with the Tennant system every six months. We used to clean them more often, but we've curtailed the schedule recently.

"Metal drip pans are used for dobbies and harness sheaves on all our looms.

Basins Have Running Water

"Each weaver has a basin with running water, soap, and towels at his looms. We don't have much cloth soiled from dirty hands.

"Parts that will burn removed from looms by loomfixers are thrown into waste boxes at each loomfixer's workbench; metal parts are returned to the supply room and exchanged for new ones.

"On rayon faille, we clean our reeds at every cut mark with carbon tetrachloride mixed with a rust preventive. Drop wires are cleaned every third cut.

Nylon warps are cleaned only at warp-outs. When reeds are cleaned, the shuttle boxes are cleaned and the handrails are wiped clean.

"Harnesses and other warp equipment removed from looms are cleaned in a vat of solvent and are dried with cloth.

"Magazine hands clean the thread holders every shift.

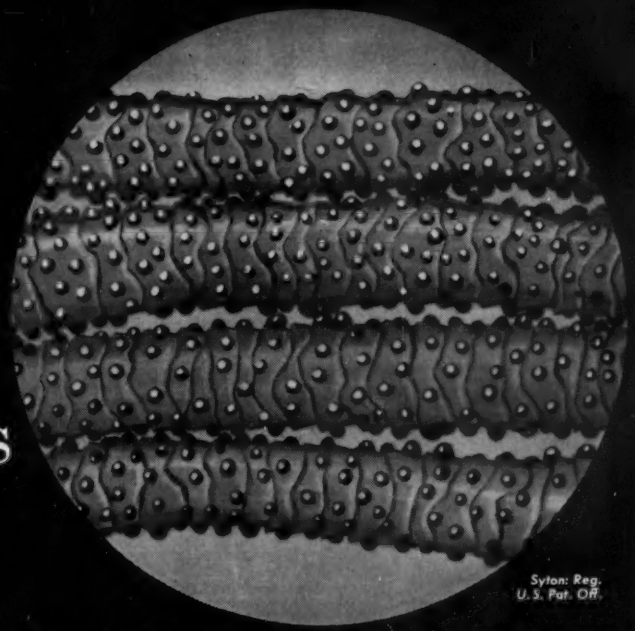
"Our weave room is air conditioned, and we run 65% r.h. and hold the temperature at 82° F."

Mill No. 6—"We have 257 C&K S-3 looms weaving dope-dyed fabrics, filament rayons, and nylons.

"One loom cleaner on each shift cleans looms at tie-backs and empty looms. He uses brushes, rags, and a petroleum solvent. It takes about an

For more information, write direct or use Reader-Service post card.

How to get finer yarns from coarser stocks with SYTON



Syton: Reg. U. S. Pat. Off.

Millions of submicroscopic particles of Syton increase interfiber drag, hold fibers in place, enable you to spin finer yarns.

Here are more advantages you get with Syton:

- Fast, easy carding—reduces harmful effects of static electricity
- Lighter, finer counts from coarser fibers
- Less twist for the same strength
- Fewer ends down
- More uniform, condensed rovings
- Higher spinning speeds
- Increased tensile strength
- High interfiber drag
- Improved color
- Improves processing of 100% synthetic fibers on woolen systems

Wait a minute! Why not get the full story? It's all in a booklet called "Profitable Spinning of Wool and Wool Blends with Syton"—technical data, illustrations, case histories. Write now to MONSANTO CHEMICAL COMPANY, Inorganic Chemicals Division, 710 North Twelfth Street, St. Louis 1, Missouri.

SYTON is an odorless, translucent, pH-stable silica sol for use alone or with other finishes. It distributes uniformly; requires no special equipment, aftertreatment or curing. It is highly resistant to dry cleaning yet removes easily from stock by mild scouring.

MONSANTO
CHEMICALS—PLASTICS

SERVING INDUSTRY...
WHICH SERVES MANKIND

NEW

ONB-SC

TACKING HEAD

for GREATER PRODUCTION

LOWER MAINTENANCE

Another new machine from Curtis and Marble's Research and Development Department thoroughly tested in prominent New England mill.

7 POINTS OF SUPERIORITY

- For high speed applications where cloth is automatically guided through the tacker in tandem with a folder or soaper.
- Continuous duty rated up to 3200 stitches per minute
- Skip free stitching
- Smoother performance
- Vibration free oscillation
- Completely enclosed, silent chain drive
- Splash lubrication system

Keep posted — Send for Bulletin No. 348

Manufacturers since 1831 of finishing machinery for a wide range of fabrics

Curtis & Marble MACHINE COMPANY

WORCESTER • MASS.

hour to clean an empty loom and 30 to 35 mins. to clean a tie-back. No compressed air is used to clean our looms.

"Machine-shop employees clean fluorescent lighting fixtures once a month with soap and water.

"Walls are cleaned by boiler firemen on week ends.

"We have hardwood floors, and our shop men reseal them with the Tennant system once a year.

No Advantage in Painted Floors

"We don't use drip pans at all to protect our warps or cloth. Most floor areas under our looms are painted gray, but we don't plan to replace the paint when it wears off; there isn't any advantage in having the floor painted.

"Wash basins are scattered over the weave room for loomfixers and weavers to keep their hands clean.

"Loomfixers are required to throw all used loom parts in a waste box provided at each loomfixer's workbench.

"Reeds are cleaned at each cut mark. A reed cleaner on each shift cleans all the reeds. Magazine hands clean the thread holders on their magazines once each shift. Filling waste is separated by yarn type and placed in barrels.

"Reeds from empty looms are cleaned in the drawing-in room with Varsol, and then they're polished in a reed-polishing machine. Empty harnesses are scrubbed by hand with Varsol.

"We have air-changing equipment and maintain 65% r.h. and a temperature of 85° F."

Heat Exchangers

CONTINUED FROM PAGE 101

On a 24-hr., six-day basis, it is obvious that these heat exchangers are paying off in very substantial savings of steam.

The fresh cold water that has been heated by passage through the heat exchangers is, of course, available as feed water for boilers, washers, mercerizers, dyeing ranges, etc. Boosting the temperature to that required for the various processes requires much less steam than is needed to heat cold water to processing levels.

Costs Are Low

The only operating cost in an average heat-exchanger installation is power for the pumps. Maintenance on the exchangers is limited to an occasional cleaning of the tubes. Clean-

CRUSH-RESISTANT, WRINKLE-DEFYING COTTONS THAT MANY WASHINGS WON'T DISCOURAGE—YOURS WITH

RHONITE R-1*

Our wise little owl knows that cotton dress goods (or rayons or blended fabrics) become wonderfully wrinkle-resistant when treated with RHONITE R-1. Even repeated washings won't take away their fresh, springy beauty.

RHONITE R-1 treated fabrics can be calender-finished for a wide range of effects—from friction to deep embossed, from plain to moiré.

***RHONITE R-1** is another dependable chemical product for the textile industry made by the makers of LYKOPON.

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

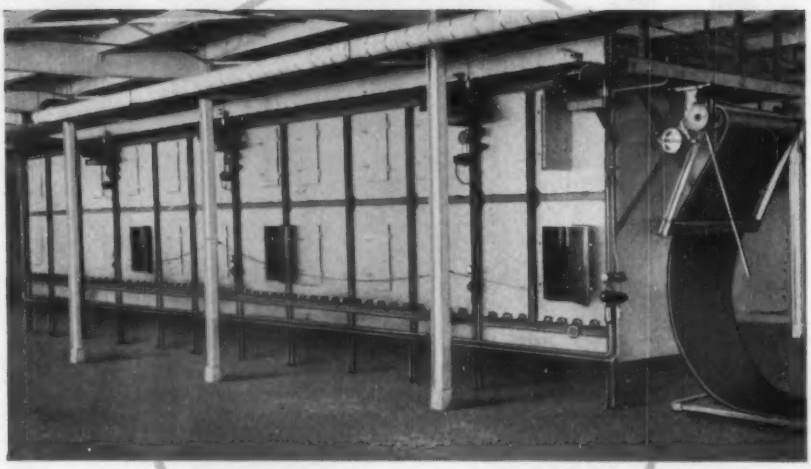
WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

RHONITE *and* LYKOPON *are trade-marks, Reg. U.S. Pat. Off. and in principal foreign countries.*

WOOL CARBONIZING

the modern way



WALDRON mechanical equipment and ROSS 4-zone dryer built to handle goods up to 84" in width

RUNNING 32 OZ. GOODS AT SPEEDS UP TO

50 yards per minute

The unusual speed secured with this carbonizing-drying unit is made possible by exposing more of the material to controlled heat during its operation. The first two drying zones each hold 147 yards of goods, third zone 182 yards and the fourth zone 61 yards where baking temperatures up to 340°F. are available. All operating rolls are Heresite coated for maximum resistance to corrosion. Details on other design, construction and operating advantages will be furnished on request.

John **WALDRON** Corporation

P. O. BOX 791 · NEW BRUNSWICK · NEW JERSEY

Leaders In Web Process Engineering Since 1827

World's Leading Builders of Machines For
Coating, Crepeing, Embossing, Film Casting, Flocking, Gumming, Guiding, Laminating, Printing, Rewinding, Slitting, Unrolling, Varnishing, Waxing, Winding.

ing frequency depends mostly on the cleanliness of the waste water flowing through the tubes.

In gray mercerizing, where the waste water is contaminated with starch and lint, it may be necessary to clean tubes every two weeks. In dyeing or bleaching operations, the cleaning cycle may extend up to two months or more. Silicate deposits that may build up from peroxide bleaching operations are removed by boiler-tube cleaning devices.

At Pepperell, recording instruments keep check on the temperature of the incoming and outgoing fresh water. When the differential begins to drop off, the tubes are cleaned.

The life of the heat exchanger will, of course, be determined in part by the materials used in construction, the location of the unit, and good-housekeeping practice. A heat exchanger with a stainless-steel shell and tubes could be expected to give good service for many years.

Twistless Yarns

CONTINUED FROM PAGE 105

their greater apparent evenness as compared with spun yarns. Actually, the linear-weight distribution is little, if any, more uniform than equivalent spun yarn.

The characteristics of the singles twistless yarn woven or knitted into fabrics are interesting. It has been amply demonstrated that the lateral pressure of crimp and interlock in woven and knitted goods serves just as well and in some respects more efficiently than twist in preventing slippage of fibers and in retaining yarn strength and continuity.

Tek-Ja Yarns Are Strong

Experimentally, we can say that twistless yarns in fabrics have the same range of strengths as conventional materials and in some instances significantly greater strength. It has been surprising to find how low a construction one can go to and still have the material hold together solely by crimp and interlock. It also is interesting to note that there is relatively little difference in the strength of the fabric when the adhesion is left in or scoured out.

Since twistless yarns have very limited elongation under load and in fabric can give only through crimp interchange and fiber stretch, the fabrics tend to be dead and inelastic. This, of course, makes them usually more stable dimensionally than their spun-yarn counterparts. The limited elongation gives a lower tear strength

water is costly!

squeeze it out of your resin production picture with

U.F. Concentrate—85

U.F. Concentrate—85 is the highest concentration of liquid formaldehyde commercially available... 59% formaldehyde and 26% urea in a water solution!

. . . Here are 4 big reasons why you should use U.F. Concentrate—85 for the synthetic resins used in making molding powders, textile finishes, surface coatings, adhesives and special papers:

- **Increase** production in shorter time with existing equipment.
- **Reduce** processing time for dehydration.
- **Charge** larger batches to kettles.
- **Save** storage, handling and shipping costs.

This is another of the efficient process chemicals provided by the more than 60 years of research, experience and know-how that stand behind all Nitrogen Division products.

For full information and free folder on U.F. Concentrate—85, or other formaldehyde solutions, *write today!*

THREE OTHER HIGH PURITY FORMALDEHYDE SOLUTIONS

...for a variety of applications

Inhibited	Low Methanol
37%..Formaldehyde...	37% & 45%
7%....Methanol	1.5%
3.5.....pH	3.5

As with all Nitrogen Division Products, these exceed the specifications of most industrial users.

NITROGEN DIVISION ALLIED CHEMICAL

NITROGEN DIVISION

ALLIED CHEMICAL & DYE CORPORATION

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Anhydrous Ammonia • Ammonia Liquor
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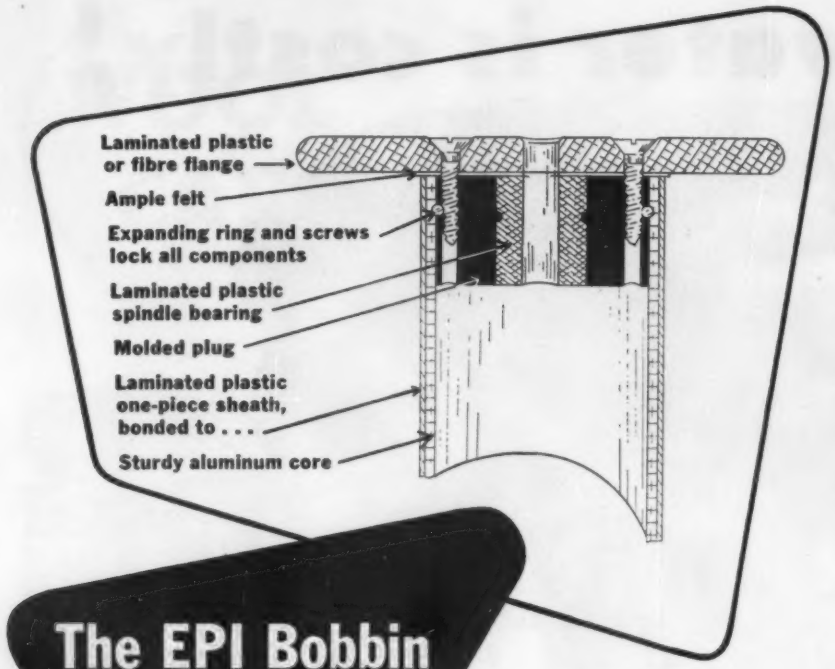
Nitrogen Solutions
Fertilizers & Feed Supplements

For more information, write direct or use Reader-Service post card.


Laminated plastic or fibre flange
Ample felt
Expanding ring and screws lock all components
Laminated plastic spindle bearing
Molded plug
Laminated plastic one-piece sheath, bonded to . . .
Sturdy aluminum core

The EPI Bobbin is Better Built

The EPI bobbin is built and assembled *from the spindle outward,* with every part machined concentric to the spindle. All parts are permanently locked together with our patented* expanding lock ring assembly. This makes the strongest bobbin you can use for nylon or other tenacious yarns.

Every EPI bobbin is dynamically balanced. Experience has shown that even minute variations in methods and materials used can show up in excessive spindle and machine wear, increased maintenance costs, higher power consumption, and poorer quality yarn. Dynamic balancing plus concentric construction make the EPI a smooth running bobbin.

It will pay you to write, wire, or call for full information on the EPI bobbin.

*U.S. Patent 2,625,343

New England Representative: J. H. Windle, Jr.
231 S. Main St., Providence, R. I.

ENGINEERED *Plastics*

INCORPORATED

Gibsonville, North Carolina

because of the lessened ability of the material to distribute the stress through a wider area. The differences found so far have not been of major magnitude.

Fabrics of twistless yarns with the adhesive removed are characterized by great suppleness of hand. In high-texture constructions, which normally are stiff, the twistless version is quite flexible and drapey. When the adhesive is removed from knitted and low to medium woven constructions, the twistless yarns spread out and give improved cover.

Cost Is High

As to the operation on a commercial basis, capital investment per end of delivery will be several times that of conventional spinning. Also inherent to the process are the expenses of the adhesive and the drying. It also is likely that ends per operator will be in the hundreds rather than the thousands.

On the favorable side, the linear production rate per delivery end will be several times that of conventional spinning—we think at least three times the speed for medium counts and maybe up to five times the rate of normal spinning. Fine yarns come zipping through the Tek-Ja process about as fast as coarse counts. Another advantage is that the initial package can be of any size.

Just where this combination of physical characteristics will best fit into textile usages remains to be seen. Application will probably be where apparent evenness, smoothness, flexibility, and dimensional stability are significant.

Training Knitters

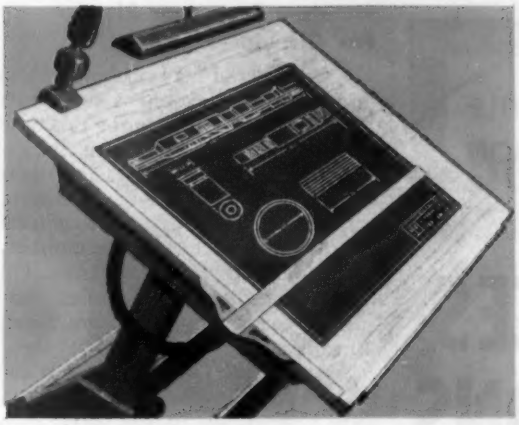
CONTINUED FROM PAGE 107

pay. The mill's policy is to have at least one apprentice training for each type of circular machine, such as links-links and wrap-reverse types.

Under the supervision of a fixer, a full-fashioned knitter apprentice spends 1,000 hrs. learning the basic principles of the full-fashioned machine. He assists in partial dismantling and repairing during this time. If new machines are being installed, he assists in their erection.

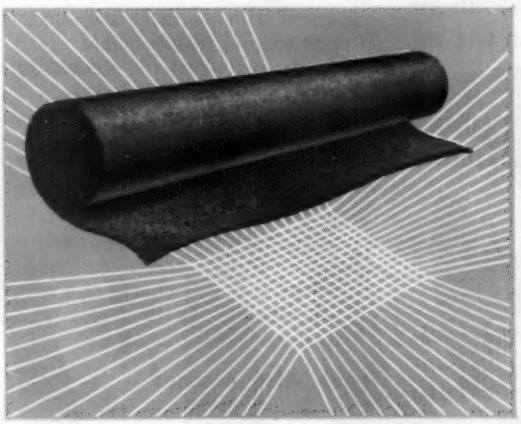
The next 1,000 hrs. of his training period are spent straightening needles, replacing minor broken parts, and cleaning and oiling the machines. He then spends the remaining time of his training period learning to operate the machine.

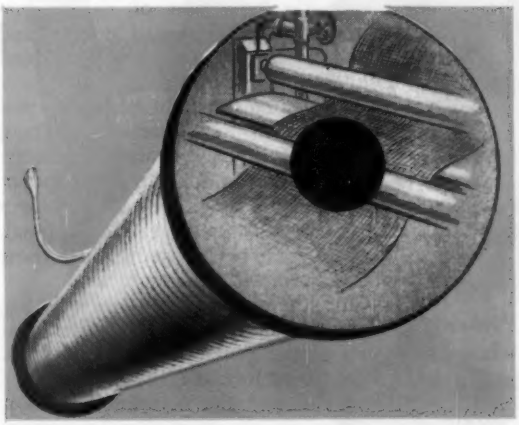
CONTINUED ON PAGE 190



PARACRIL D...

...the oil-resistant rubber for the most critical applications!





Paracril D is unexcelled in resistance to oils, fuels, aromatic hydrocarbons, chlorinated organic liquids, and many hydraulic fluids. It offers great dimensional stability, unusual tensile properties, high resilience, and exceptional abrasion resistance.

A copolymer of acrylonitrile and butadiene, PARACRIL D can be blended with plastic resins or with other types of rubber to impart these special properties.

As a raw polymer, Paracril D can be easily dissolved in many solvents to make low-viscosity adhesive solutions for cement applications.

Wherever you use a rubber or rubber-like product that must stand up under deteriorating oils and solvents—for belting, packing, diaphragms, rolls, printing blankets, hose, or seals—use Paracril D, *the most oil-resistant rubber ever marketed.*

Perhaps Paracril D, or other types of Paracril® made by Naugatuck, can help *you* improve or develop a product. For complete information write to us, *today.*

Naugatuck Chemical

Division of United States Rubber Company
Naugatuck, Connecticut

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POLYCO NEWS TEXTILE EDITION

POLYCO ANNOUNCES 3 NEW PVA EMULSIONS

PEABODY, MASS. Once again the Polyco Department of The Borden Company has led the field in the development of new polyvinyl acetate emulsions with special characteristics not previously available. This is another step in Polyco's program to expand what is already the most versatile PVA family in the industry. A report on each of these 3 new emulsions follows:

NEW POLYCO 577G

for outstanding water resistance

Here is a 55% solids anionic type polyvinyl acetate emulsion designed primarily for interior flat paints . . . and for coatings for textiles and paper. It deposits a film with outstanding water-and-scrub-resistance, and will not blush when wet. Pigment compounding characteristics are excellent, and film formation is good. Borax compatible . . . and also has good color stability at high temperatures.

NEW POLYCO 612

for maximum compounding versatility

It's the new "60% solids" anionic type PVA emulsion especially developed for coatings and adhesives that require a high solids compound. Water resistance, scrub resistance, and color stability at high temperatures are good. It is borax compatible. And it permits economies in shipping and inventories while having maximum compounding versatility.

NEW POLYCO 679

for water-resistant adhesives

A 55% solids anionic type emulsion developed for use in non-discoloring high temperature heat-seal adhesives. Easily compounded with starch and natural gums . . . yet it has good water resistance, too. This new Polyco is also borax compatible, and has good scrub resistance.

For further information and samples of these new PVA emulsions, just write The Borden Company, Chemical Division, Polyco Department, TW-55, Peabody, Mass. And remember, whatever your needs, it pays to make Polyco responsible for all your polymer requirements. For Borden's Polyco experts have wide experience in polymerizing *all* resins . . . and personalizing particular polymers for your specific applications.

POLYCO DEPARTMENT
THE BORDEN COMPANY, CHEMICAL DIVISION
101 FOSTER ST., PEABODY, MASS.

Here's a Four-Year Plan For Circular Fixers

A circular-hosiery-machine fixer's term of apprenticeship is four years. Here's what he learns during this time:

First year—The general principles of hosiery knitting. The characteristics of various yarns used in hosiery knitting, and where the yarns are often used. The difference between yarn numbers. The names and types of machines. The differences between needles and gauges. The correct use of tools. Safety principles.

Second year—The maintenance and lubrication of machines. The replacement of worn and broken parts. How to build chains for various styles. How to time the chain, pattern drum, and dial. How to check the fabric for faults.

Third year—How to dismantle and rebuild machines. How to repair machines. How to operate complicated machines. How to make adjustments. How to set and replace cams.

Fourth year—Pattern mechanisms. The possibilities of new designs.

In the third or fourth year, the apprentice is put in charge of half a set of machines. As he progresses, he is allotted more machines until he can control a complete set. Apprentices are not tied down to any definite schedule. If remarkable progress is shown, he is put in charge of a set of machines before the third-year period is completed.

Dyers Also Trained

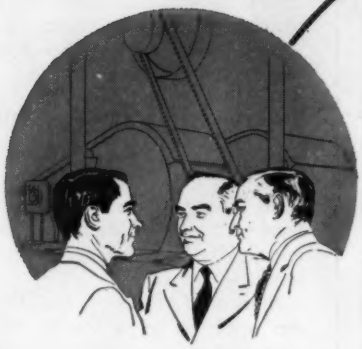
Hosiery dyers are also trained on a similar apprenticeship plan. They learn the operation of dyeing machines, the processes of dyeing, and methods of drying. Dyestuffs and chemicals are studied.

They are also taught laboratory procedures, and they practice matching shades on all types of yarn and hosiery. The training is done by the superintendent of dyeing. The dyer trainees have a large library at their disposal, and they are encouraged to take these books home to study.

An administrative panel governs the apprenticeship plan. The panel consists of the general superintendent, a department foreman, the maintenance foreman, and the personnel director.

The panel establishes minimum standards of education and experience and irons out differences between apprentices and the company. The panel makes an annual report that covers the progress of the apprentices and the effectiveness of the training.

Each apprentice is awarded a certificate at the completion of his apprenticeship. The company hopes that sometime in the future a ceremony will accompany the annual awards.



because it's
always uniform . . .
and backed
by Keever service

VICTOR
Mill Starch

A KEESTAR PRODUCT

is the weaver's friend

THE KEEVER STARCH CO. ★ GENERAL OFFICES ★ COLUMBUS 15, OHIO

Processors of corn, wheat and blended starches for industry since 1898

Charles C. Switzer, Vice President
TEXTILE SALES DIVISION
1200 S. C. NATIONAL BANK BLDG.
GREENVILLE, SOUTH CAROLINA

Model "E" with hood end-cover removed. Note vacuum skirt.

...faster, easier care of mill floors

TENNANT Model E

FLOOR MAINTENANCE MACHINE

Features

- Works FAST; propels itself.
- Rugged, yet weighs less than 90 lbs. Highly portable.
- Does CLEAN job; has new, powerful vacuum (3450 rpm fan).
- Operates on 115 v. AC.
- Has wax bar attachment for polishing office areas.

Exceptionally easy to use, this compact new 21" TENNANT Model "E" Machine offers important new advantages in floor care . . . in speed . . . convenience . . . low-cost operation.

It combines light weight (less than 90 lbs.) with a powerful vacuum and *self-propelling* action. Allows cleaning most areas 50% faster than with smaller TENNANT machines . . . and 3 to 4 times faster than with disc machines of comparable size.

Self-propelling; requires no skill

You simply guide the Model "E" at walking speed. Requires no skill, no handle pressure. It cleans a 21" path, has extra-low nose clearance, works in hard-to-reach areas.

You'll be delighted with the results. It whisks off light dirt and oily spillage . . . helps "heal" abrasions . . . restores gloss. *Send in the coupon for more details about this compact new machine. It is modestly priced and will pay for itself fast.*

Tennant 24" sweeper cleaning floors in mercerizing department.

G. H. TENNANT COMPANY
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Please send details about the new Tennant 21" Floor Maintenance Machine—the Model "E".

NAME_____

COMPANY_____

ADDRESS_____

SPECIALIZED MAINTENANCE EQUIPMENT

Midwest Dyehouse

CONTINUED FROM PAGE 115

partment. Each beam is separately driven by a hydraulic turbine supplied from a motor-driven pump. The drive gives smooth starts and good control at the reversing point.

Broken Twills Are Popular

Broken-twill fabric with crepe-twist filling is now used considerably for head linings. These fabrics are not napped but are bleached, mercerized, and jig-dyed with vats or naphthols are required.

Spotproof finishes for the twills are applied on a pad-tenter range equipped with an automatically controlled gas-fired heating system.

The napped fabrics generally get a sulfonated tallow-dextrine formula applied on the pad tenter range as the final finishing operation. The purpose of the finish is to add a little weight and firmness so that the fabric will lay up well on the cutting table.

Toledo also bleaches and dyes a number of other fabrics that go to the Textileather plant for coating with various plastics. These fabrics are desized and then dyed with direct colors on a pad-can range. White sheetings for surgical tapes are kier-boiled and chlorine-bleached.

Cloth quality is watched carefully at all points; the final inspection may be in the last processing operation or may be an additional operation, depending on the goods.

Raschel Nets

CONTINUED FROM PAGE 119

In a two-bar pattern where there is a stitch on the front and back bars, the needles rise to their full height and dwell. The guide bars controlled by the swing cam then pass through the needles.

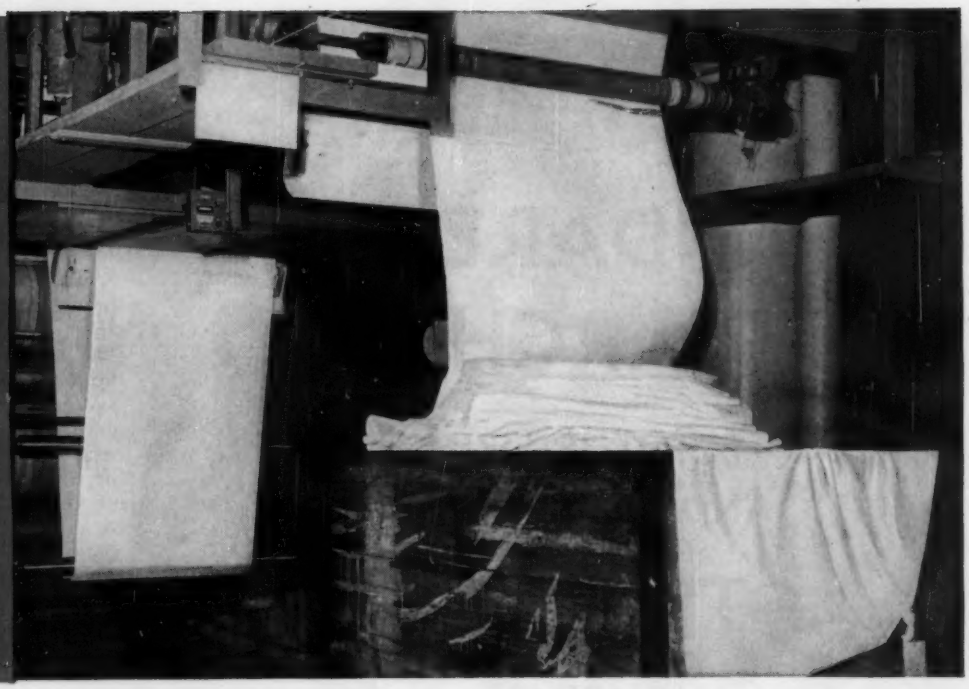
4. Set Swing to Gain Speed

At the farthest-out position, the chain moves one link for a stitch on both bars; then the bars pass through the needles on the return swing. The needles then fall to the down position.

However, on a net pattern only the front bar stitches; so set the swing a little differently to gain some machine speed.

Don't forget that the swing-bar cam timing and the shifting of the chain links work with each other. Advancing or retarding the swing cam means making a movement on the chain drum.

CONTINUED ON PAGE 194



Shown is the 50-millionth yard of crease-resistant cotton run with STANSET D 40 and STANSET LC! Photograph taken in prominent cotton finishing plant.

Controlled CHLORINE RETENTION

OF CREASE RESISTANT COTTON FABRICS!

Finished with STANSET LC, millions of yards of white cotton shirting fabrics — as made up by one of the largest shirting manufacturers — have withstood repeated commercial laundering *WITHOUT* noticeable yellowing or significant loss in strength due to the action of chlorine bleaching.

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Leading cotton finishing companies are building valuable reputations for their own important trade marks with STANSET D 40 and STANSET LC.

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STANSET D 40 and STANSET LC are new, highly efficient cross-linking compounds which *really* set the shrinkage of cotton fabrics with that additional bounce — at low cost!

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Fabrics finished with STANSET D 40 and STANSET LC may be cured over a wide range of temperatures, from 250°F. to 340°F., for 70 to 90 seconds, to fit almost every fabric construction, assuring the highest crease resistance, tensile and tear, in conjunction with CONTROLLED CHLORINE RETENTION.

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CORN PROCESSING DIVISION
CLINTON, IOWA

5. Retard Swing Cam

The needle-bar movement is always constant, but we are able to make different swinging and stitching motions. First, retard the swing cam slightly and then the chain drum. Retarding the swing cam will cause the needles to rise to the high position and dwell.

The guide bars will pass all the way through the needles with about $\frac{1}{16}$-in. clearance. The front bar will then shift one link and the guide bar make the return pass.

When the front bar is three-fourths of the way through the needles, the bar should start to drop and complete the stitch without the lay-in bar passing through the needles. The lay-in bar does not have to make a complete return pass. The yarn is placed in position on the going-in pass and locked in position by the front-bar stitch.

The swing-bar cam is set so that both guide bars make a complete pass going in the needles. On the return pass, only the front bar passes the needles to retain the stitch.

6. Fit Needles Into Guides

The next step is to fit the height of the needles into the guides. Do not have the needles going into the guides any higher than necessary. For a one- or two-needle jump, fit the top of the needle heads between $\frac{1}{4}$ to $\frac{1}{2}$ of the diameter of the guide hole.

If the guides are too low, the needles will have a tendency to pull out the threads when slubs or broken filaments pass through the guide hole. If the guides are too high, some of the threads will slide over the top of the needles and cause drop stitches.

7. Adjust Cast-Off

The next step is to set the cast-off or knock over. Don't forget that the less cast-off you have, the tighter the stitches and the greater the tension between the top of the trick plate and the sand roller.

This fabric tension between the trick-plate top and the sand roller keeps the fabric from riding up the needles when the needles rise. This tension is counterbalanced by the tension on the threads from the ground beam. The cast-off for a 40-den. yarn is about $\frac{1}{16}$ in.

8. Set Tension on Beams

The machine is now ready to start knitting. Thread the machine according to the specification sheet. Knit down a few inches of fabric and set the tension on the ground beam.

CONTINUED ON PAGE 196

A "Baker's Dozen" in Textile Chemicals

It's an old American custom to build and hold business by giving "something extra." And Solvay's textile chemical business has been built on this sound principle.

Solvay not only supplies textile chemicals of the highest quality at the lowest prices, but gives "something extra" by extending its responsibility into the plants of its customers to assure efficient use, handling and storage of all its products.

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In addition, Solvay's local sales offices with their trained and experienced sales representatives give you the close personal attention that best fits your individual requirements—whether you order by the bag or in carload lots.

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Set the tension so the resistance of the weights or beam let-off is less than the tension on the tension-bar springs. The more weights or resistance on the beam let-off, the tighter the stitch and the greater the tension.

One of the functions of the lay-in threads is to give a balanced construction; so set the back beam differently from the front beam. If the lay-in beam has lots of tension, the hexagon-shaped hole in the mesh will be elongated. If the lay-in beam has low tension, the hexagon hole will be distorted. Regulate the lay-in beam with weights until the net has a pleasing appearance on the machine.

9. Adjust Quality

When both beams are tensioned, check the quality of the net. Put a short piece of colored thread across the needles and stitch it in. Count 240 courses, and put in another colored thread. The distance between the two threads is our quality.

The quality is then controlled from the take-up gear on the sand roller. To produce a better quality cloth, change the take-up gear to one that would turn the sand roller a less amount for each stitch.

While the procedure outlined above has been directed toward tulle or bridal-veiling production, the same principles can be followed for all raschel fabrics.

Comber Preparation

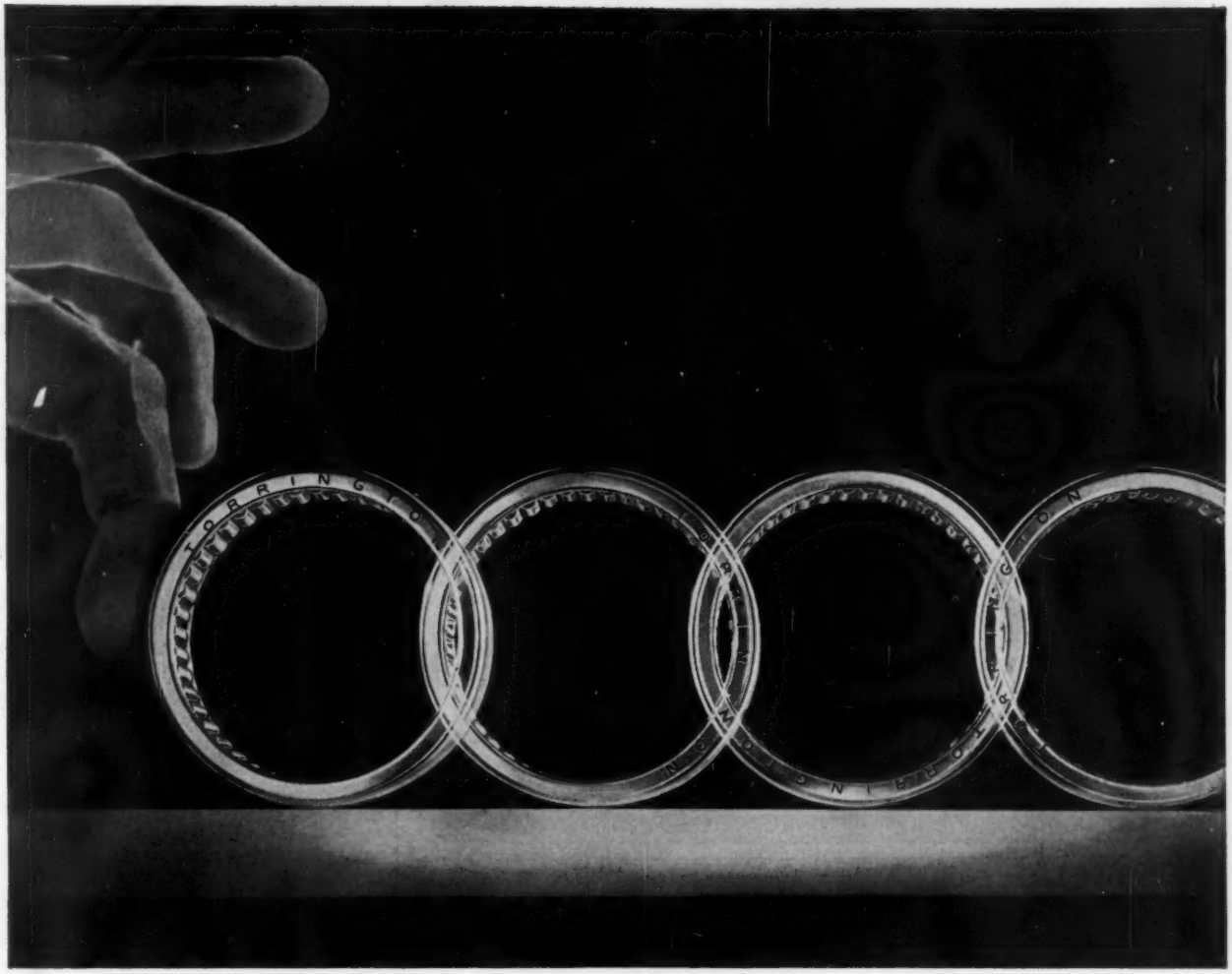
CONTINUED FROM PAGE 121

surface and the long fibers to form the core of the sliver. The lap winder has only a tension draft and does not upset the fiber orientation. Therefore, the half lap and top comb tend to take out more short fiber and less long fiber, according to the mill tests.

With no changes other than the comber preparation, the noil dropped from 16% to 14%. At first, the mill readjusted the combers to bring the noil back up to 16%, but that was found unnecessary. The yarn at 14% noil is as clean and strong as it was with 16% and is slightly better in appearance.

A test was made on 100 yds. of each type of lap to determine the yard-by-yard uniformity of the comber laps from the two preparatory systems. The mill set control limits, and 55% of the yards from the ribbon lappers were within limits. The number of yards within limits from the new lap winders was 94%.

Tests on the uniformity of fiber distribution in the comber noil verified



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Nor are the frictional characteristics of the Needle Bearing dependent upon maintaining a continuous oil film as is a plain bearing. This all adds up to inexpensive and simpler designs, smaller drive motors and dependability.

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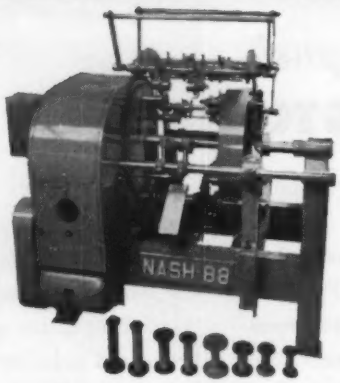

This NASH 88 Automatic Bobbin Refinisher produces no yarn or fabric — but it does prevent the defects in spinning or weaving due to rough bobbins.

HOW IT FUNCTIONS . . . The NASH 88 refinishes throwing and twisting bobbins at the rate of ten pieces per minute. It provides controlled abrasive action on the barrel, inside flanges, and over top radius of flanges. Burnishes inside surface and top radius of fibre flanges. Removal of all roughness prevents tearing of filaments from rough bobbins. Cleans as well as refinishes.

SPECIAL FINISHING MACHINES SINCE 1890 NASH

J. M. NASH Company

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the mill's idea that the more-uniform lap would give a consistently better combing job. The lap also has resulted in less variation of yarn numbers.

Here Are Production Details

The cards make 52-grain sliver at a production of 10¼ lbs. per hr. Each card tender runs 33 cards.

The four-roll preparatory drawing, seven ends up, makes 36-grain sliver at a production of 12.5 lbs. per hr. per delivery. The lap winders, 20 ends up, make 710-grain comber laps at a production of about 250 lbs per hr. each. One operator runs 20 deliveries of drawing and one lap winder. The four-roll drawing has 12-in. coilers.

The Naismith combers run at 100 nips per minute and make 62-grain sliver at a production of 18½ lbs. per hr. Each operator runs 13 combers.

The three-over-four breaker drawing after combing makes 62-grain sliver at a production of 14 lbs. per hr. per delivery. A 60-grain sliver is made on the three-over-four finisher drawing at the same production. Each operator runs 56 deliveries.

Rubber Finishing Rolls

CONTINUED FROM PAGE 127

storage containers is the shipping case in which they were delivered by the manufacturer, because it is fitted with supports for the shaft.

Rolls should be wrapped in heavy kraft paper, as they are delivered.

If convenient, it is desirable to rotate rolls in storage 180° once a week.

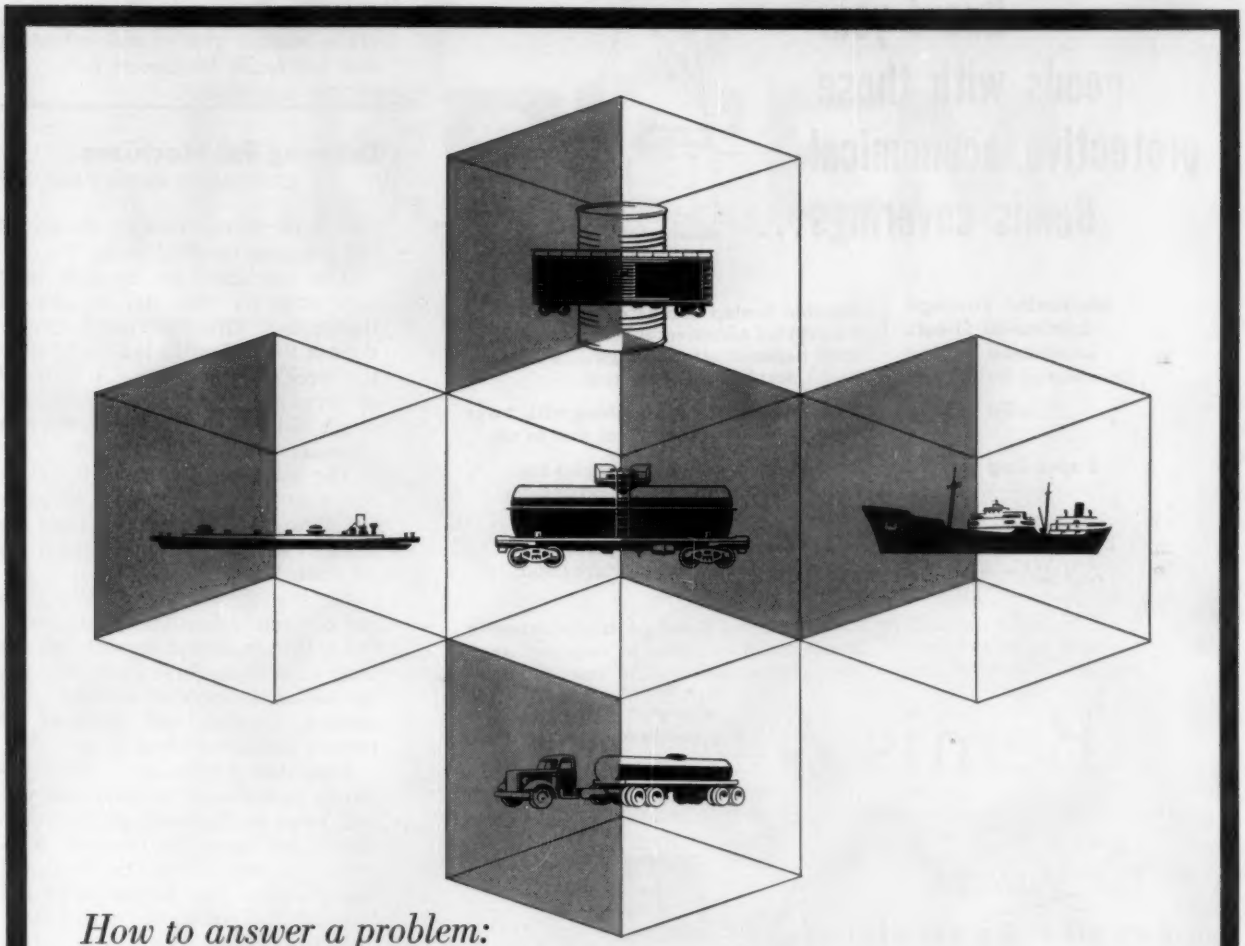
Rolls should be kept in a cool, dark, damp spot where the temperature is never above 75° and never as low as 32°; 50 to 60° is the ideal temperature.

Rolls should never be near a source of heat and should never be allowed to freeze. They should be kept away from electric appliances, especially motors; motors generate some ozone, which is injurious to rubber.

When rolls are replaced in service from storage, they should be reground. Regrinding is recommended in any case and is imperative if rolls have been six months or more in storage. The object is to remove a small film of oxidation from the surface.

Modern rolls, with modern deoxidants in their composition, oxidize only slightly; but that little oxidation must be removed to prevent the early development of hairline cracks and to

DOW



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Burlap Piece Goods	Mixed carloads of burlap piece goods in a wide assortment of widths and lengths are available.

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Spinol RL—Orlon, Orlon-Wool blends, Dacron
Laurel Hosiery Finishes—all fibers
Permanent Resin Finishes—all fibers
Flame Retardant #527C
Water Repellent Compounds—all fibers
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Drawing-In Machines

CONTINUED FROM PAGE 129

sene in the storage tank for the needle bed is kept at the level mark.

The machines are checked once each week for wear and are cleaned thoroughly. This checking is usually done at the end of the last shift before the week-end shutdown. A light oil or kerosene is used for cleaning. All rough and rust spots are cut off when the machines are cleaned.

The machines stand over the week end with the oil on them. All gears are blown out and are regreased on Monday morning before the machines are started again.

Needles break occasionally, and harness and drop-wire rods wear. Other than these replacements, there's little wear of machine parts. Needles are broken by heddles or drop wires sticking together and by bent or twisted heddles or drop wires.

Exposition's thorough and constantly maintained harness-repair system keeps needle breakage to a minimum. All harnesses removed from looms are repaired on the first and second shifts. Two employees on the first shift and one on the second make the repairs.

Heddles are removed from the harness frames, and all parts are cleaned thoroughly. Then they're inspected for wear. Worn parts are replaced.

The repairmen place the heddles on the two counting machines and set the count by the machine operators' orders.

A lot of time is spent gauging the bars to the harness frames. The repairmen set the bars with a gauge; and then the machine operator helpers recheck them before the harnesses are placed on the machine.

Extra Operators Are Available

Each machine is operated by one operator and one helper. The helper prepares the harnesses, drop wires, reeds, and loom beams for the machine and removes the drawn warps. The operator runs the machine and is responsible for its condition.

The machines are used on the first and second shifts only.

Saturday morning classes are held each week to train extra machine operators. There are five men in the class, and classes last 4 hrs. The

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A lot of knitwear thinking is being changed by Acrilan acrylic fiber. To sweaters it brings a new luxurious softness, warmth that's practically weightless, greater dimensional stability and less pilling. For jersey it offers a hand never before possible in a synthetic. In both cases Acrilan's easier dyeability permits a full range of rich, fresh colors . . . and Acrilan's performance outpaces any other fiber you've known. That's why before the year's end you'll be seeing knitwear of Acrilan in the wardrobes of all America.

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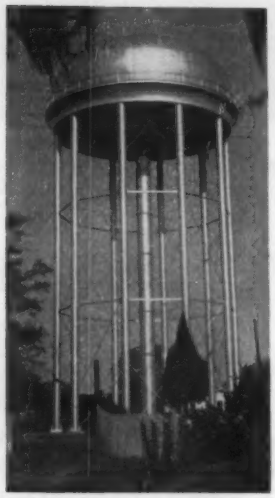

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- TANKS
- TOWERS
- CYLINDERS
- VESSELS
- STANDPIPES

learners are hour hands from production departments.

The group is taught by a machine operator.

Instructions include: (1) how to put up harnesses, drop wires, and reeds; (2) how to set harnesses in the frame; and (3) how to set up the machine for different cloth patterns.

The instructor draws in several repeats of a pattern, pulls out the ends, and lets the learner draw in the ends.

Now several operators are available if the machines should have to be operated on the third shift for extensive style changes.

Quality Control

CONTINUED FROM PAGE 133

exceed the control limits or when they show a general upward trend, it is time to go all-out.

P charts are recommended, based on 100-yd. cuts. It is not necessary to plot individual defects unless they are outstanding and cause a large percentage of seconds. If this condition exists, plot the individual defect on *C* charts until this particular problem is solved.

The over-all percentage of seconds should be plotted on *P* and sigma charts for control. Since the figures are available, it might be wise to plot the summary by shift, weaver sets, and fixer sections.

There usually is a correlation between seconds and efficiency. The summary will also show up many surprising things. Some weavers have more seconds from broken picks; others have more start marks. A good analysis of defects by weavers points up their worst trouble, and helpful and corrective actions can then be taken.

Study how the weavers and fixers with fewer broken picks solved that problem; then pass that information along to the ones who haven't solved the problem.

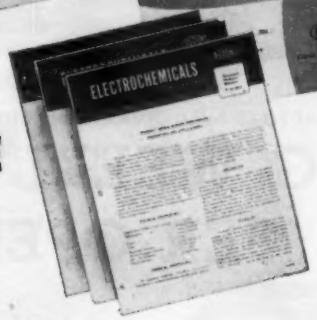
This analysis involves an awful lot of plotting, but do it at least until plotting proves useless. Once a state of control is established, you are ready for the final big step.

The Net Results

Now that you have your entire manufacturing process standardized and in writing, with yarn breaks and seconds in control, you are not through.

Next you must correlate total yarn breaks per pound for the entire manufacturing process with percent seconds, and plot side by side. With this chart, you can tell which yarn lots

Here's help for more efficient bleaching . . .



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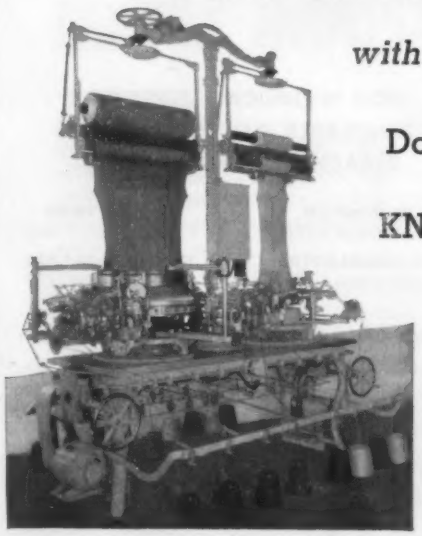

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give you the most first-grade cloth and have fewer breaks and hence which yarn lots you should buy for your next order.

It may be necessary to modify your control charts for seconds, using C charts instead, and plot total points per 100 yds. for warp, filling, and mechanical defects separately to properly assign defects to each yarn lot. Keep in mind that filling yarn usually moves to the weave room within 24 hrs. but warps are stored sometimes for a month before being mounted in looms.

Actual practice will determine whether to use the standard-average-breaks per pound for each process or actual values for this final correlation. The standard average will simplify your calculations, and the actual figures will complicate them somewhat. In either case, the time and work involved will be repaid by the results.

You have been through your entire process with a fine-tooth comb and standardized the whole job; you know exactly what each process does to the yarn; and everyone is on their toes. You may say that this program will cost a lot of money. But look what it has done for you. How else could you achieve the same results?

Tubular Knit Goods

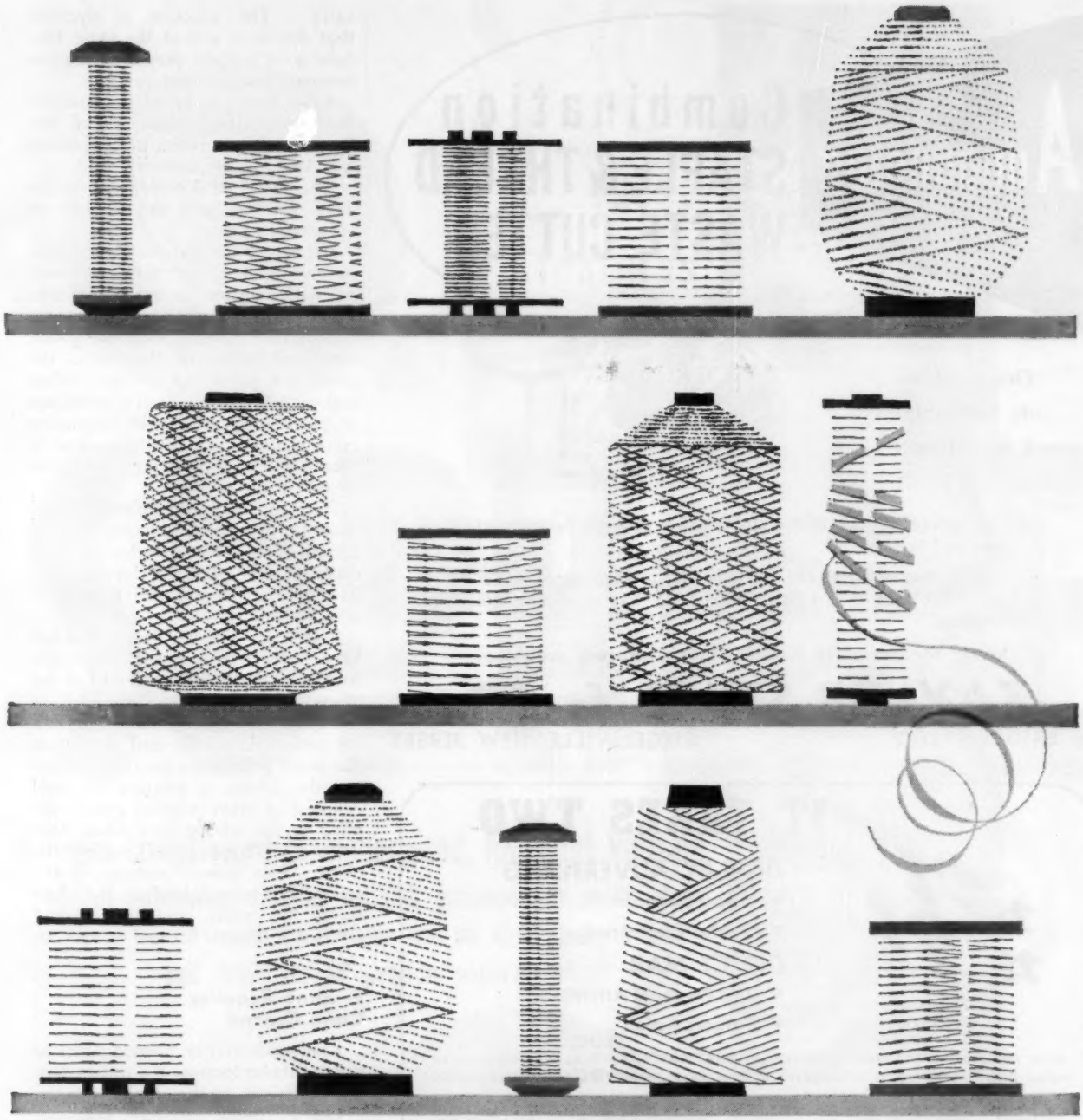
CONTINUED FROM PAGE 135

After presetting, the goods are ready for scouring and dyeing. Oval reel dyeboxes are preferred for synthetics; round reels mounted over deep boxes work better for fabrics of high wool content.

Prior to dyeing, synthetics and blends are scoured. Some styles are loaded into empty dyeboxes; others may be loaded directly into water at 70 to 80° F. Piece ends are carefully sewed by machine to avoid creases developing at the seam. Scouring agents include anionic or nonionic detergents plus TSPP. The goods are run cold for 10 to 15 mins.; then the temperature is raised to 120 to 160° F., and scouring proceeds for 20 to 45 mins. It is sometimes possible to scour and dye in one operation, provided the cloth has been knitted very clean and the dyes to be used are not sensitive to alkali. Bleaching is rarely necessary; optical bleaches suffice in most cases.

Level Dyeing Is Not Easy

The dyeing operation presents some difficulties in attaining level work because some qualities tend to cling together and others distort or stretch



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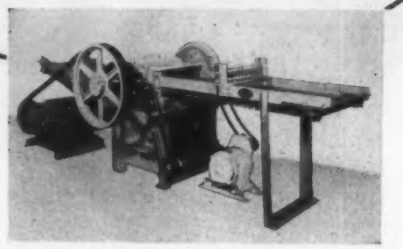

This machine cuts both staple and thread waste.

In cutting staple the stock is run through two sets of pins and tension rolls.

In thread waste the stock is run on feed apron under the front pins and tension rolls, and the rear pins are removed.

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easily. The selection of dyestuffs that dye level and at the same time have good fastness properties requires constant research and testing.

Level dyeing is helped by assistants, but the assistants must be of low-foaming characteristics or the fabrics will float and dye unevenly.

The choice of dyes depends on the fibers involved and the fastness requirements.

Because most finishes are applied in the dyebox, softeners, stiffeners, antistatic agents, water repellents, slipproofing agents, and others are chosen that exhaust onto the goods. After exhaustion of the finish, the goods are taken out of the dyebox and extracted carefully in a centrifuge or put through a mangle, depending on the style. In all cases, care is taken to avoid setting unwanted creases in the fabric.

Prior to drying, the tubular fabrics must be detwisted. Drying may be accomplished on a drum dryer or loop dryer. Resins or other finishes may be applied on a pad and then dried or cured.

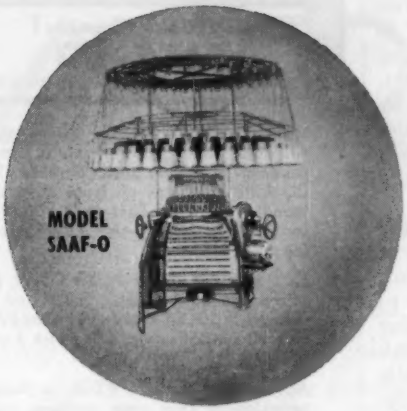
Flat goods—tubular fabric that has been slit—require special treatment to control the tendency to curl at the edges. Mechanical devices such as the spiral roll and the uncurling belt are used to flatten the curl just before the goods go into the pin frame. During the drying, a solution of ethyl cellulose or other colorless gum is applied to the selvage by a wheel that revolves in the gum and against the cloth. The pinned portions of the selvage are trimmed off as the cloth leaves the tenter, and the finished goods will then lie flat and smooth for cutting.

Printing Requires Close Control

Knit goods may be printed either in flat or tubular form on the usual printing machines or the duplex printer.

On a regular printing machine, tubular goods are printed first on one side and then rerun to print the other side. Great care is necessary in rolling the goods after the first printing so that they are free of creases. The engraving of the rolls has to be carefully done to provide sufficient color and to obtain good coverage without flushing. Pigment colors have proved satisfactory for this purpose because they do not require afterwashing, which would disturb the fold of the tube.

In printing flat fold or split goods, the fabric is pasted to the back gray with British gum applied on the first nip of the print machine. The second print roll presses the goods onto the back gray and makes it adhere. Good



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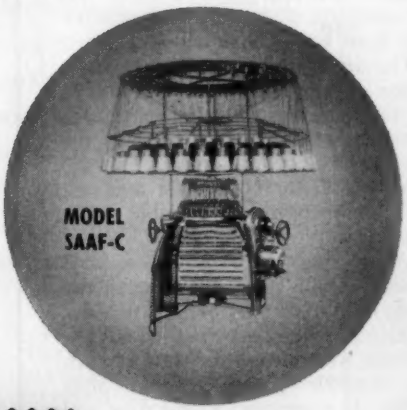

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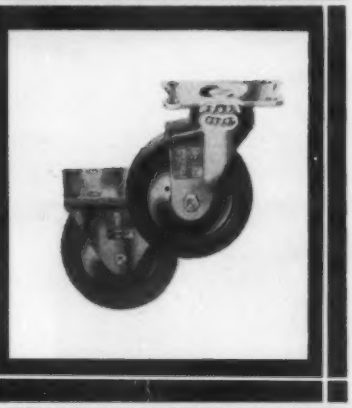

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register of the colors is obtained in this way.

Ageing of printed knit goods is generally done in a tower ager, a festoon ager, or a cottage steamer to avoid tension. Washing after ageing is done in rope form on a slack washer.

Final drying may be followed by calendering or decatizing. Tubular goods can be run through a Tube-Tex tensionless calender that relaxes the fabric and removes all wrinkles.

Decatizing may follow calendering as a final finishing step for fabrics of wool or blends high in wool content. The thermoplastic fibers may tend to flatten and glaze during decatizing unless special care is used. The calendered or decatized goods are finally inspected and packaged for shipment.

Silicone Resins

CONTINUED FROM PAGE 148

adequate stirring. Temperature of the mix should be from 70 to 90° F.

Other materials such as urea or melamine resins or vinyl polymers may be used with silicone resins for hand modification. They should be mixed separately from the silicone resins and then mixed with them just prior to use.

Such mixtures should be checked in the laboratory to make sure that they are compatible and that the finished effect meets requirements.

Available Equipment Is Satisfactory

Conventional padders and drying equipment commonly used in resin finishing will produce good results with silicone resins. Three-roll pads threaded for two nips may be preferable, but well-prepared cloth will get adequate absorption and penetration from two-roll pads.

The drying and curing may be done in one operation in a loop dryer. Curing time will vary with the fabric, the particular resin being used, and the catalyst employed. Generally, 4 to 8 mins. at 320 to 340° F. are sufficient to produce optimum durable water repellency.

When the silicones are applied alone, it is not necessary to wash the goods after curing, as there is no odor problem. When they are used in conjunction with urea or melamine resins, it is advisable to wash the goods after curing. In some cases a light rinse will improve the water repellency and hand of fabrics finished with silicones only.

Other mechanical treatments like calendering, button-breaking, or decatizing may be used to achieve particular finished effects.

CONTINUED ON PAGE 210

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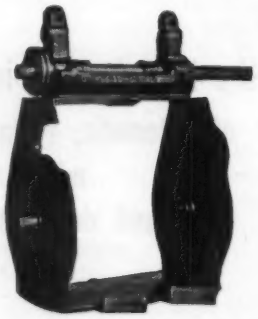

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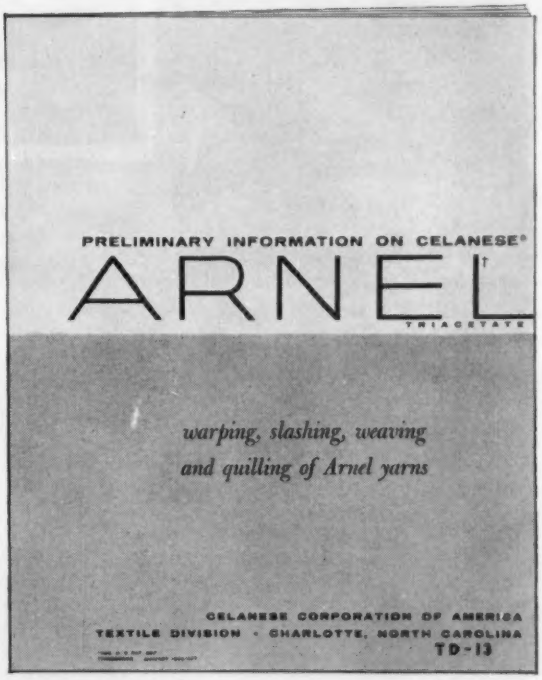
If you are now using, or plan to use, Celanese Arnel, you will find these two new Celanese Bulletins of great help. They summarize existing experience on Arnel including Celanese Research and Development findings. For a copy write to the district sales office nearest to you and ask for them by number.



TD-13 "Warping, Slashing, Weaving and Quilling of Arnel Yarns"

This bulletin contains formulas and typical procedures for slashing Arnel spun and filament yarns. In addition, important suggestions are made in regard to fabric constructions to help take advantage of Arnel's intrinsic properties.

TD-14 "Processing of Arnel Staple Fiber"

This 12 page comprehensive bulletin contains much data on the spinning of Arnel staple into yarns. Strength and elongation of typical 100% Arnel yarns and Arnel blended with other fibers are included. Tints suitable for Arnel are listed. In addition, curves showing twist response information are illustrated. The method of identification and determination of Arnel in fabrics or fiber blends is included.

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Finishes Are Durable

Synthetic fabrics finished with silicone resin should retain a spray rating of 90 to 100 after three No. 2 AATCC washings and a rating of 90 to 100 after three 30-min. dry-cleanings.

Cotton, rayon, and blends of these fibers with synthetics, finished with silicones and urea resins, show spray retentions of from 70 to 90 after three No. 2 AATCC wash tests but may be expected to give ratings of 90 to 100 after three dry-cleanings of 30 mins. duration.

The tough, flexible film of silicone resins that is formed on the fibers improves resistance to abrasion to a marked degree, probably because of increased lubricity. As little as 0.25% resin will increase dry abrasion resistance up to 5 times and wet abrasion resistance over 1½ times as compared to untreated fabrics.

Loosely constructed materials may tend to show slippage of warp yarns over filling or vice versa when finished with silicones, but this tendency can be overcome by adding colloidally dispersed silica (Syton W-20) to the resin mix. The hand is slightly drier and crisper, but water repellency remains excellent and tear strength is better than on unfinished goods.

Other beneficial side effects include improved resistance to creases, better sewability, and increased tear strength on many types of fabrics, which again may be attributed to increased lubricity between fibers.

Fashion-Sealed Stockings

CONTINUED FROM PAGE 89

The calf narrowings start just below the knee and extend over a greater length of the calf than the narrowings of conventional hose. The number of narrowings is about the same; but there are more courses between narrowings on the new hose.

Wales Converge On Seam

This construction gives a natural shape to the leg, and the wales converge on the seam to give a pleasant effect along the calf. The narrowings extend to a point just above the high splice.

Clementon Hosiery Mills knits the new hosiery on 51-gauge and 60-gauge machines in several constructions. One construction is made with a five-thread silk sole with 30-den. nylon splicing and a 15-den. nylon leg.

Patents for the fashioned-sealed stockings are held by Clementon Hosiery Mills, and President M. M. Lihn has licensed several prominent mills to produce the new stocking.

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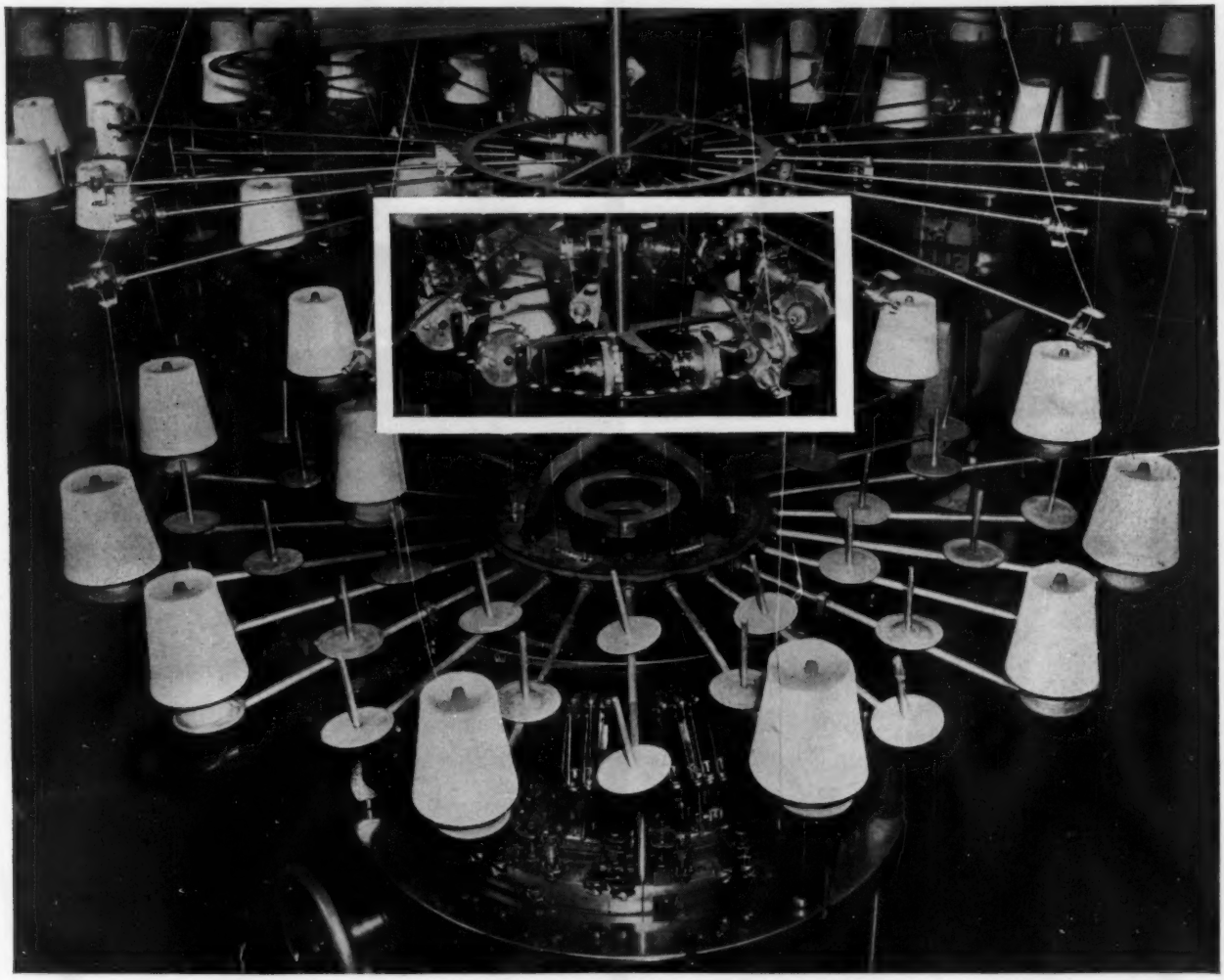

"ORLON"*–how it's tension-controlled at the Hudson County Knitting Mills

The Hudson County Knitting Mills, who make sweaters of DuPont "Orlon", recently installed Kidde Standard Compensators — one for each yarn feed — on their Jacquard Knitting Machines.

Mr. William A. Zeug of Hudson County Knitting Mills reports, "Since installing these Kidde Compensators we can control fabric widths much more accurately. We have no more uneven stitches due to irregular tension, no more back-winding of cones and less frequent stitch cam adjustment."

Reports like this, while amazing, are not unusual. Because Kidde Compensators, used by more than 500 leading textile mills throughout the nation, cut costs and produce a better product wherever they are installed! They can do the same for *you*. For more information on Kidde Compensators, write Kidde today.

** A DuPont acrylic fibre*

OTHER APPLICATIONS!

Kidde Standard Compensators, installed on Circular Knitting Machines will also solve tension problems in the running of rubber yarns, stretch-type nylon yarns, and most spun and continuous filament synthetic yarns!

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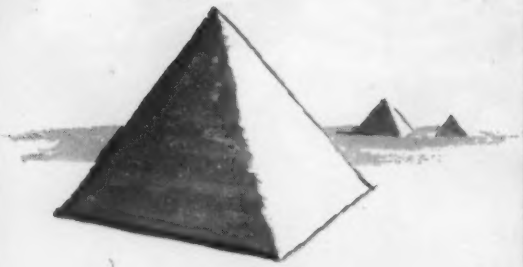

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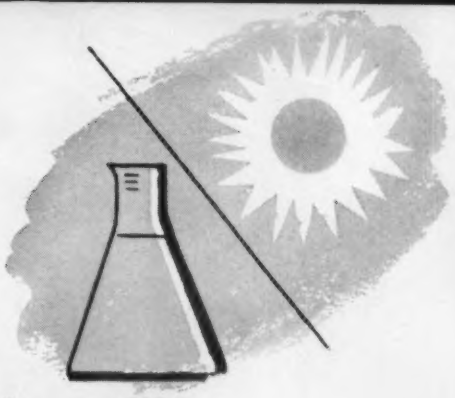
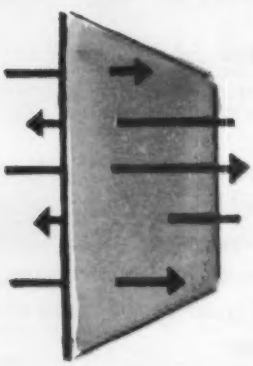


Versatility

—they are applicable to processing of natural or man-made yarns, fibers and fabrics.



Thoroughness

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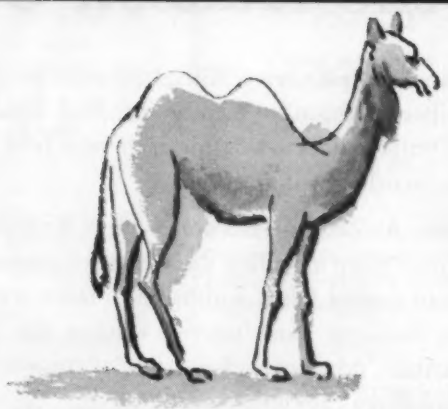

Stamina

—a more even yarn is achieved to produce a more uniform fabric.

says Dave Abel of the Malina Company:

"What scouring removes, AVCOSOL 104 restores"

What is the best bet for bringing a yarn back to its desired original finish once detergents and dispersing agents have taken their toll in scouring? Malina places its money (and confidence) on AVCOSOL 104, particularly with fine deniers. As Malina's Dave Abel points out, the confidence is well justified. *Before* dyeing, *while* dyeing and *in the finishing bath*, AVCOSOL 104 does its work lubricating and softening the yarn for easier future processing, reducing static, helping distribute dye colors evenly... stabilizing and bringing back the yarn's original characteristics lost during scouring.

A simple comparison test in Malina's winding department sold them on AVCOSOL 104—for keeps. After running a side-by-side winding comparison test with and without AVCOSOL 104 as a lubricant, AVCOSOL 104 joined the firm—to stay.

The successful use of AVCOSOL 104 enjoyed by Malina Yarns can be applied to your own production needs. We offer the complete technical assistance of AVISCO chemical specialists to aid you in selecting the most suitable materials and techniques for your own requirements. Call on us.

Textile Chemical Sales **1617 Pennsylvania Blvd.** **Philadelphia 3, Pa.**	**Textile Chemicals Div.** **P. O. Box #455** **Marcus Hook, Pa.**

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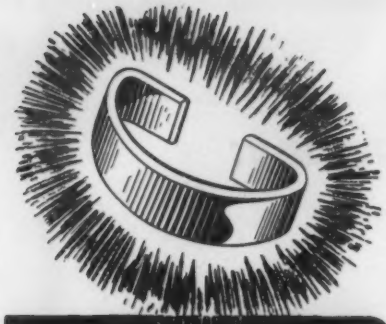
RAYON, ACETATE, VINYON,† FILATEX® †TMC & CCC



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Our specialty is making Dary ring travelers — an item well and favorably known to the textile trade for more than half a century. Though times change, we at Dary hold to one course without deviation. We continue to serve, by pursuing our specialty.

When you need ring travelers, call on our experience to aid your choice. Consult your friendly Dary representative!

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CRAWFORD "JACK" RHYMER, BOX 2261, GREENVILLE, S.C.

7 Methods for Obtaining Rayon SHRINKAGE CONTROL

► **These seven methods for stabilizing rayon fabrics are now in commercial use.**

Urea-Formaldehyde Resins

The first shrinkage-control method that gained commercial use was based on application of urea-formaldehyde resins in various modifications. These resins reduce the tendency of spun rayons to shrink and improve color washfastness to some extent. Lightfastness is sometimes adversely affected. With careful laundering, shirts and slacks give satisfactory service provided the finishing is conducted properly.

The Definize Process

In 1945, there was considerable interest in the Definize process for obtaining shrinkage control by use of caustic soda of 30 to 50% strength. In this process, the goods are padded, neutralized, and dried without tension. Fabrics have satisfactory shrinkage control, but desired variations in hand and use on blends are limited. Tendering and color change are problems.

Use of Glyoxal

At about the same time, the use of glyoxal, either alone or with methylol ureas, was introduced. Shrinkage control is provided by the reaction of glyoxal with cellulose in relaxed finishing methods, and the treatment is nonchlorine retentive unless additions are used to make finishing easier. Yellowing of whites and embrittlement of the fiber present some problems. Modification with urea resins and softeners has increased the range of finishes based on glyoxal.

A glyoxal formula containing resins is:

4 to 12% glyoxal
2 to 12% dimethylol urea
sodium bisulfate
sodium sulfate
water to volume

The Avcoset Process

The use of a cellulose ether plus an acid-catalyzed formaldehyde in 1948 started the Avcoset process. Early formulations were limited to soft, drapy hands; but later a water-soluble hydroxyethyl cellulose ether of low viscosity was developed that permits a wide range of finishes. Sodium bisulfate and sodium sulfate replaced sulfuric acid as the catalyst, and modifying additives can now be used to change the fabric hand.

The advantage of the cellulose ether is that practical finishing methods can be used without sacrifice of shrinkage control.

The basic Avcoset formula is:

1% Avcoset WS
10% formaldehyde
2% sodium bisulfate
0.5% sodium sulfate
water to volume

The Aquex Process

The Aquex formaldehyde process uses formaldehyde and a chelated polyvinyl acetate with an acid catalyst of approximately pH 2. Excellent shrinkage control can be obtained if this formula is followed:

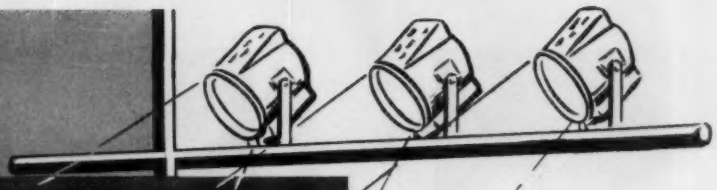
10% Aquex BNW (chelated polymer)
12% formaldehyde (37%)
2% Initiator RES (catalyst pH2)
0.25 to 2.0% softener

The X-2 Process

The X-2 process follows the general formula:

5% X-2 (aldehyde product)
8% starch-like stiffener
1.25% softener

Based on a paper presented at the International Congress of Man Made Textiles in Paris, France, by J. W. Woodruff, American Viscose Corp.



Super Tufter SPOTLIGHTS:

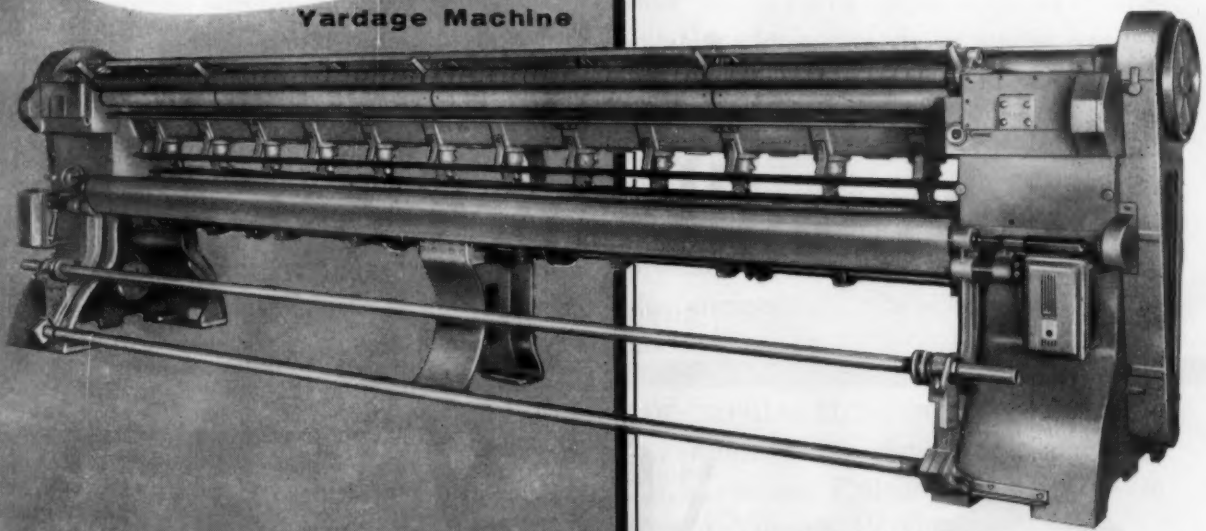
PRODUCTION

EFFICIENCY

QUALITY

with MODEL 208 Yardage Machine

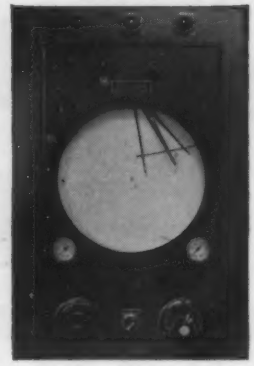
- Sews maximum width of 208 inches.
- Produces finished carpeting up to 15 feet wide in Cut Pile, Short Loop, Long Loop.
- Dual drive connected directly to main shaft.
- Positive drive cloth and yarn feed.
- With Pattern Control Attachment this machine can reproduce in loop pile any design that can be drawn on paper.



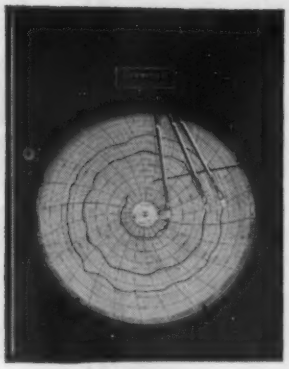
Other SUPER TUFTER yardage machines available in 40", 45", 54", 62", 76", 121", and 168" widths.

Super Tufter
MACHINERY COMPANY, INCORPORATED

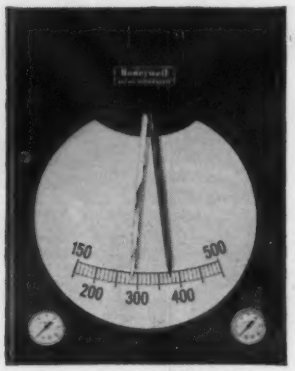
212 First Avenue, North
Fort Oglethorpe, Georgia



Dye Kettle Control System . . . a packaged unit for time-cycle control of piece goods dyeing.

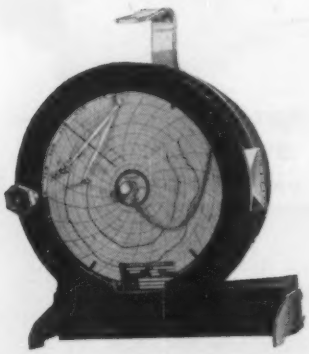


Thermometer Recorders . . . in choice of thermal systems . . . single, two-pen and three-pen models.



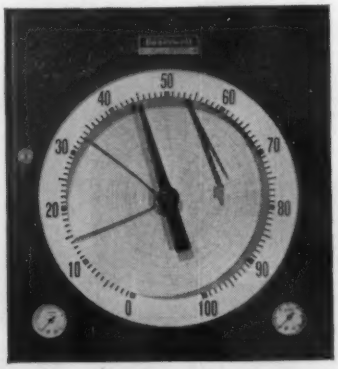
Thermometer Controllers . . . indicating and recording models, with electric or pneumatic control systems.

There's Brown temperature instrumentation to fit *your* mill's processes

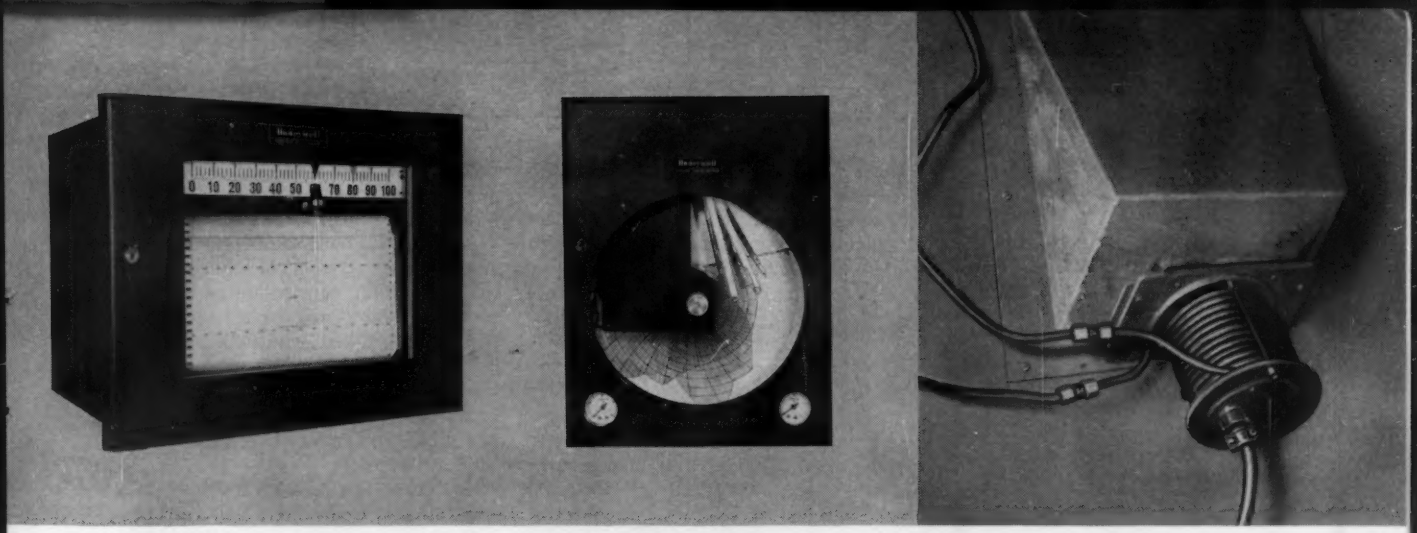


Portable Thermometers . . . recording type, ideal for spot checking of process temperatures.

Indicating Thermometer Controller . . . economical, compact pneumatic control for temperatures from –40 to + 1000 F.



***ElectroniK* Pneumatic Controllers . . .** on-off, *Throttlor*, or *Air-O-Line* control action . . . also available with various electric control systems.



***ElectroniK* Multi-Point Recorders** . . . strip chart model records up to twenty points on a single instrument.

Integral Cam Programmer . . . complete time-temperature control for two separate temperatures, by a single instrument that does the work of up to four.

***Radiamatic* Radiation-type element** . . . detects temperature without touching fabric. Used with *ElectroniK* instrument for controlling heat-setting temperatures.

DURING several decades of work in close cooperation with textile manufacturers, Brown instrumentation engineers have developed a comprehensive line of measuring and controlling equipment for the specialized needs of the industry.

In this complete line you'll find instruments applicable to low, intermediate and high temperatures . . . accuracies ranging from moderate to the highest precision. Control can be selected from a choice that includes simple, field-mounted indicating instruments, remote transmission systems, package-designed panels, and thoroughly automatic time-temperature program systems.

An engineering staff well experienced in the control problems of textile processes applies these instruments to the particular requirements of your own mill. And to assure you of maximum continuity of operation, Honeywell's nation-wide service organization stands ready to render prompt assistance on installation and service . . . by specialists spotted in more than 90 service centers.

For an answer to your specific temperature application needs, call your local Honeywell sales engineer . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR Co., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

● **REFERENCE DATA: Write for Bulletin 9306, "Instrumentation for Slasher Room Processes"... and for Composite Catalog No. 5000.**

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Honeywell
BROWN INSTRUMENTS
First in Controls

What mill people say ABOUT ALLEN ALLEN HEAD SOCKET SCREWS

"Will not have any other kind."
—President and Manager
North Carolina Mill

ALLEN
MANUFACTURING COMPANY
Hartford 2, Connecticut, U. S. A.

CONTINUED FROM PAGE 137

that a misunderstanding or resentment has developed.)

• Any increase? (That might mean you've finally gotten through a tough shell; or he's trying to tell you something, either directly or indirectly.)

III. Their Complaints

Noticing the over-all shifts in complaints and gripes can be a big help in reading their minds.

Whether complaints are brought to you directly or you hear about them through a tap in the grapevine, you can learn a lot by observing fluctuations in the number of complaints.

A significant increase in grievances, for example, doesn't necessarily spell trouble. It could mean:

• People are encountering increasing difficulties because of changes in methods.

• They now feel freer to communicate complaints than they did in the past.

Most supervisors judge the importance of complaints primarily by their content—which is O.K. provided the judgments are based on patterns rather than single causes. The thing to watch is a change in either the number of complaints or the things complained about.

IV. How They Work

Pace is basic. The pace at which a group turns out the work ties in to the very heart of life on the job. Just look at a couple of the factors that upset regular work schedules:

• A rift in relations between individuals. Personal feuds can throw the whole operation out of gear.

• Insecurity feelings. When rumors of organizational changes run through a group, what happens to the work at hand?

Changes of workpace are good indicators of trouble ahead—if you know how to read the signs. The secret is to be able to distinguish between normal changes and those that signal that all's not well.

You don't have to be a smoke-signal expert to know that where there's smoke there's fire. Two key questions taken together help establish whether or not trouble's brewing.

• Is the workpace normal?

• Can the change be explained by known facts? (For example, if workpace increases under the pressure of a deadline, you need not look for a "hidden message.")

If *No* is the answer to these two questions, you should check further.

Sometimes even an improvement in workpace may mean trouble.

"I couldn't figure out what had gotten into them," a supervisor said. "A week ago I came in and found my gang tearing into it like all get-out. At first I was mighty pleased. When it continued, I began to get worried.

"Finally, I asked Tom, one of my old-timers. Guess what? Some so-and-so had spread a rumor that we were going to let a third of the department go. I guess everyone was scared to death and trying to make his best showing."

Your attempt to see what's behind such a situation clearly leads you toward fact-finding conversations with people in your group. Keep in mind during your investigations some of the obvious—and healthy—reasons for workpace ups and down: normal fatigue, slow starts with unfamiliar work, end-of-the-day spurts, and so on. It's after you've eliminated these reasons that you can get down to pay dirt.

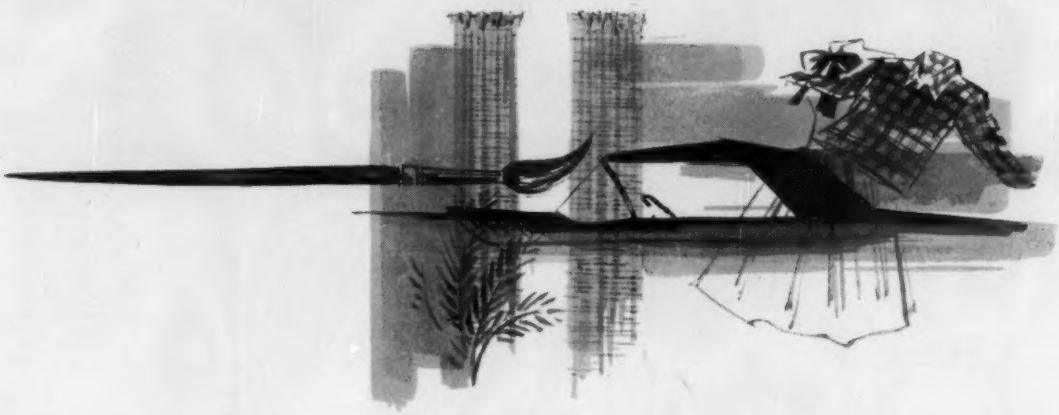
Changes in your group's workpace can be caused by a variety of reasons. Do you know your group well enough to predict what these reasons are?

Here's a list of possible causes for a lagging workpace. Can you rearrange the list, putting the most likely explanation for your group as No. 1? Then go through the other items, indicating their order of likelihood.

Possible cause of lagging workpace	In order of possibility
A. Getting even with the boss	1. .....
B. Lack of interest in the work	2. .....
C. Delays because of lack of information	3. .....
D. Resentment of the group against company policy	4. .....
E. Group resentment against an unfair decision	5. .....
F. They're simply tired because of pressure	6. .....
G. Lack of knowledge about time requirements	7. .....
H. Lack of experience or training in the job	8. .....
I. Internal group conflicts	9. .....

Repeating the ranking every two weeks will soon make it possible for you to spot the trends.

New proof of Coloray's wonderful blendability!



...all 36 House & Garden colors for 1956

matched by colorfast

Courtaulds' rayon fiber with Captive Color..."*can't escape.*"

Superb colors for decor... apparel... convertible tops... and what not... are coming from blends of the 15 basic Coloray colors.

Now—Coloray has matched every top decorator color in HOUSE & GARDEN's magnificent palette for 1956! Every color O.K.'d by HOUSE & GARDEN. And more than 2,000 different and delightful colors—both solids and mixtures—have been created by blending this ultra-blendable fiber. Almost any color you could wish for can be produced as planned—with Coloray.

And Coloray colors are *better*—richer and far more colorfast. Coloray's strict uniformity makes color matching easy—order to reorder. Also—it's downright easy to blend with Coloray... whether it's Coloray and Coloray... Coloray-and-white rayon... Coloray-and-other-fibers.

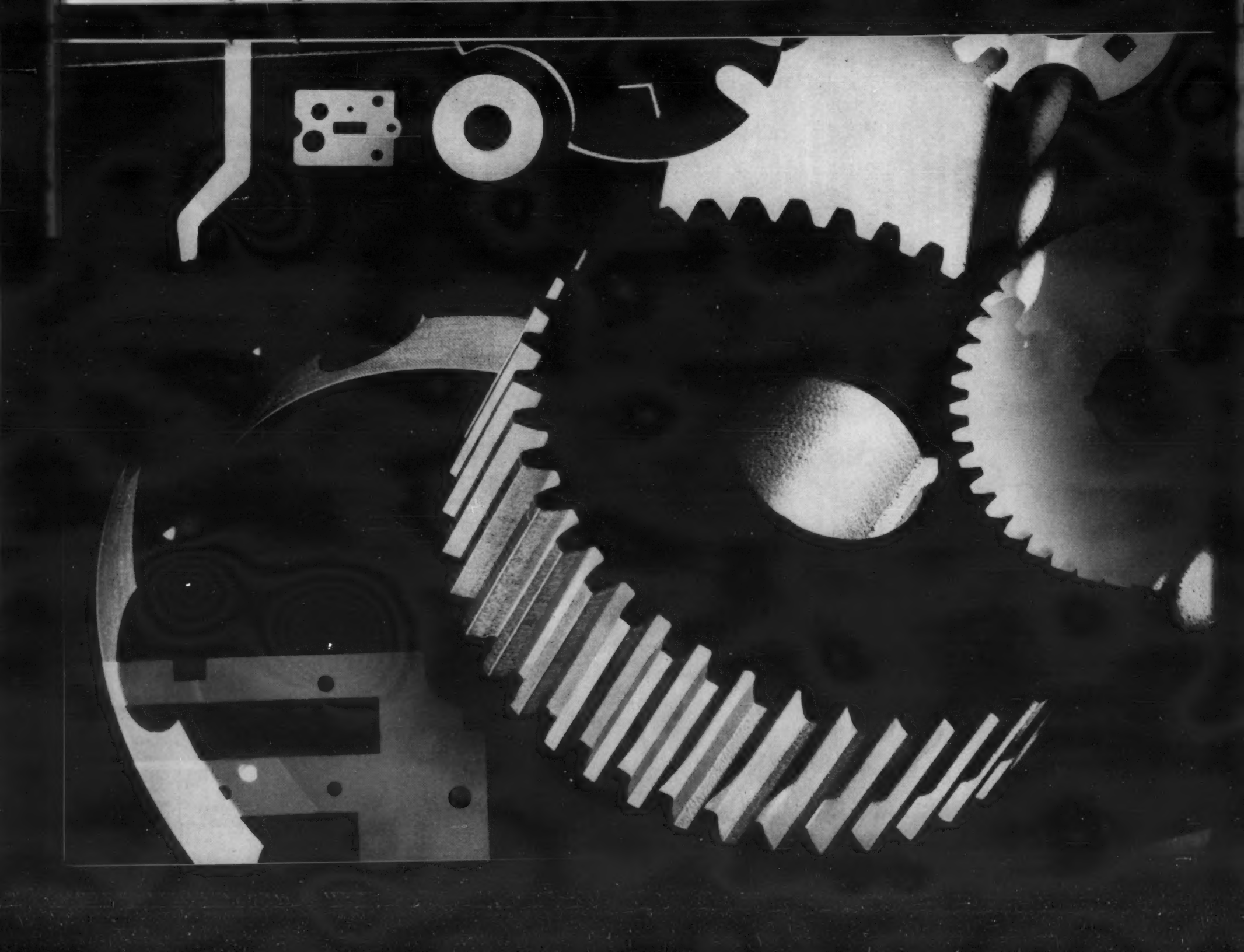
Leading American and British mills have enjoyed working with this fiber since '38. Any mill can get expert guidance on specific Coloray operations from Courtaulds, on request.

And anybody who makes or sells *colorful* merchandise can do a tremendous business with the help of Coloray. What about you?

For further information write: Fabric Development Dept.

COURTAULDS (ALABAMA) INC.

first name in man-made fibers, first name in solution-dyeing
600 Fifth Avenue, New York 20 • Greensboro, N.C. • Le Moyne, Alabama



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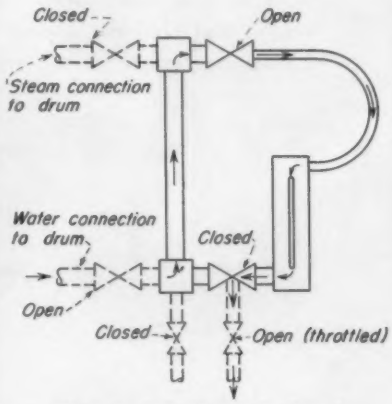
How To Care for Boiler-Water Gauges

At present, boiler operating pressures of 1,500 to 1,800 psi-ga. are considered average for public-utility-plant boilers. Since 1930, the operating pressure has almost tripled. As the pressures have increased, the problems of boiler-water-gauge maintenance have increased.



Flow diagram of gauge wash-out

Despite operating difficulties at the high pressures, gauges will give long service if they're:

1. Installed and operated by the manufacturer's instructions
2. Serviced by careful mechanics
3. Equipped with the latest designs of repair parts, particularly spring-type cones and reinforced gaskets.

There are several possible sources of gauge trouble, and each trouble can be eliminated with a little care. Three of the most-common troubles and their remedies are:

1. Damaged thread in the gauge body: Retap the thread with the proper tap. Clean the capscrews, and coat them with molykote.

2. Leaking gaskets: Replace with a new gasket, mica, and glass. Use a 0.010-in. shim as a feeler under capscrews, install the capscrews and bring the gauge slowly up to operating temperature. Then take up on the capscrews until the shoulders touch the gauge body.

3. Interruption of lighting to the illuminator: Replace the ballast with a stabilized ballast. This ballast will take care of momentary voltage drops to as low as 60 v., and it will correct 90% of all voltage drops.

For protection against actual failures of current, use the new type of illuminator, which automatically switches from a primary to a secondary source of lighting current.

Seven Tips for Care

The reduction of gauge-maintenance costs requires nothing more than good maintenance practices. Seven suggestions for such practices are:

1. Post the manufacturer's instructions where they can be seen by maintenance men.

2. In disassembling gauges, use care in removing gaskets so that seating surfaces are not damaged.

3. Do not put graphite on gasket surfaces or on capscrew threads. Use molykote on seating surfaces.

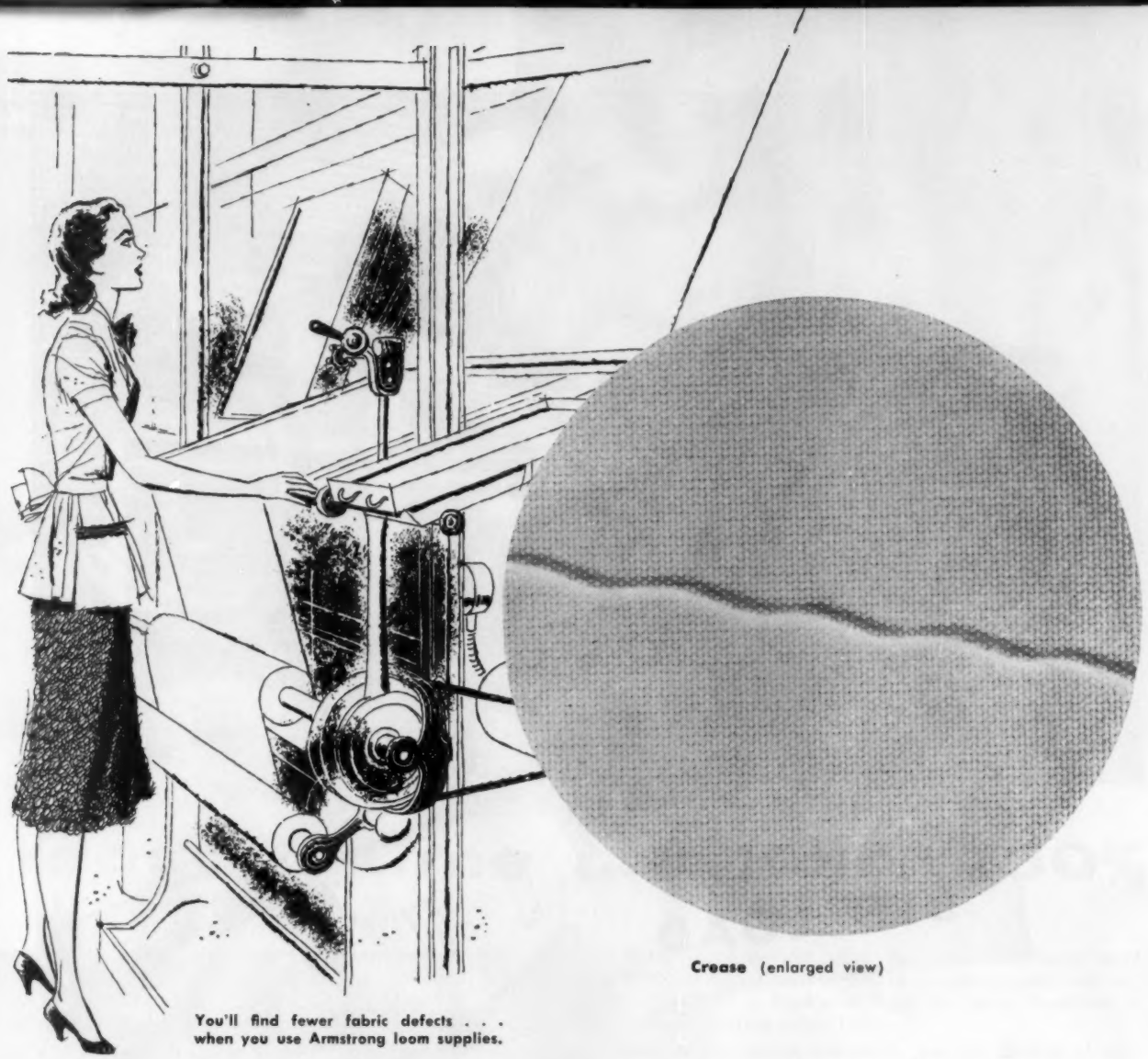
4. Do not remove new repair parts from their protective coverings until they're ready to be installed.

5. In cutting in services, be sure to preheat the gauges before tightening the capscrews to obtain the necessary gasket flow.

6. Keep the gauge-valve packing glands tightened only enough to prevent leakage. Keep the valves wide open.

7. Never blow down gauges under full boiler pressure or with both drain valves open.

Care must be taken in back-washing to help prolong the life of mica parts and gaskets. One wash-out procedure that has been used successfully is shown in the accompanying illustration. In this operation, the top connection to the boiler, column drain, and lower gauge valve are closed. These valves are open: the lower connection to the boiler, upper gauge valve, and gauge drain (separate connection on gauge valve). *Yarnall-Waring Co.*



You'll find fewer fabric defects . . . when you use Armstrong loom supplies.

Crease (enlarged view)

Extra-resilient press-roll covering helps eliminate creasing

It takes firm, even take-up tension from selvage to selvage to prevent creasing high-count fabrics. That's why many mills today are switching to a press-roll covering that holds cloth snugly against the entire width of the take-up roll—Armstrong DK-149 Covering.

DK-149 Covering won't let cloth slip or run unevenly because it has a uniformly resilient, high-friction surface. DK-149 won't pack down or develop "high spots" either, because its long-wearing sponged synthetic rubber composition is reinforced with springy particles of cork.

Won't mark cloth. The plain surface of Armstrong press-roll covering never leaves marks on the goods—yet it has more than enough friction to hold the fabric firmly and evenly.

DK-149 comes in handy ribbon form for quick, easy application to the roll. For test samples, contact your Armstrong representative or write us direct.

For your copy of the booklet, "Armstrong Textile Roll Coverings and Mill Supplies," write Armstrong Cork Company, Industrial Division, 6905 Dauphin Street, Lancaster, Pennsylvania.

Armstrong

LOOM SUPPLIES

. . . used wherever performance counts

Loom Clutch Discs and Inserts . . . made of cork to maintain friction even under oily conditions.

Loom Brake and Let-Off Strips. Plain or grooved, these cork-composition strips give long, efficient service.

Take-Up Roll Coverings. A full line in synthetic rubber, cork-and-rubber, plain, or gridded cork.

Temple Roll Coverings. Specify long-wearing Accotex® when you order temple rolls from your regular source of supply.

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AMERICAN MONORAIL

This American MonoRail Monotractor unit, recently installed in a rug and carpet warehouse, dispatches hard to handle, big bulky loads over a wide area. Fully automatic, with finger-tip control, with a hoist capacity of 1,000 pounds, this installation is SAVING 200 MAN HOURS PER WEEK.

This is another of the many examples of American MonoRail engineering for low-cost, efficient overhead handling. Let your American MonoRail representative explain the versatility, low cost and low maintenance of American MonoRail equipment. Consultation in connection with any handling problem is available without obligation.

AMERICAN OVERHEAD HANDLING EQUIPMENT

MONORAIL COMPANY

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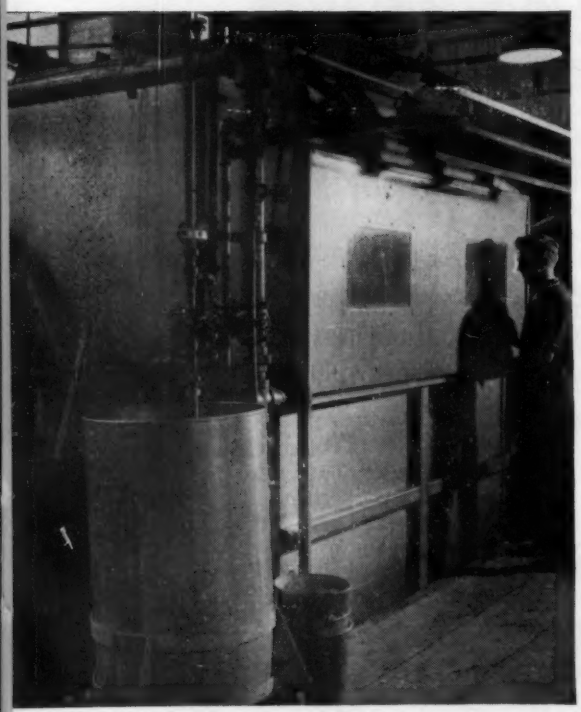
[IN CANADA—CANADIAN MONORAIL CO., LTD., GALT, ONT.]

Dyed synthetic fibers are removed from a Stainless Steel kettle at W. J. Dickey & Sons, Inc.

Pressure-dyeing in Stainless Steel kettles

reduces time and costs 50%



Operator checks one of four piece-dye machines in operation at Dickey.

● In use at the plant at Oella, Md., since 1941, Stainless Steel dyeing equipment has been a means of reducing costs and improving quality for W. J. Dickey & Sons, Inc.—manufacturers of fabrics for men's clothing since 1838.

Stainless Steel equipment has made possible dyeing of synthetic fibers under pressure with a cut in dyeing time and dyeing costs of 50% compared with methods formerly used.

Other important benefits of the change from wooden tanks to Stainless Steel extend to woolen fibers which cannot be dyed under pressure. Boil-outs are no longer necessary when dye shades are changed, and it has been found that Stainless Steel equipment outlasts wooden tanks about 2 to 1.

Stainless Steel—with its smooth, dense surface, its ease of cleaning and its superior corrosion resistance—is a potent weapon in holding the line on costs. Investigate it, and when you order Stainless equipment, be sure it is made from service-tested USS Stainless Steel.

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH
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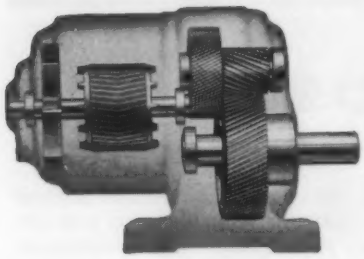
SPECIAL SECTIONS

UNITED STATES STEEL

15% More Production 45% Less Upkeep With Slo-Speed

Individual Slo-Speed drives replaced line shafting for driving batteries of knitting machines, reports Mr. Murray Tishler, Secretary-Treasurer of Diane Knit Fabrics Co., Norwalk, Conn. After one year of operation, records reveal Sterling Slo-Speeds increased production 15%, reduced power costs 12%, reduced maintenance 45%, improved personnel morale through greater plant safety and increased working areas.

STERLING SLO-SPEED



OUTSTANDING FEATURES:

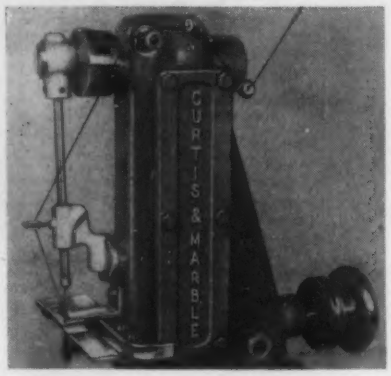
Simplified gear system — balanced design — compact — rugged — highly efficient — abundant lubrication — low output shaft — positive oil seals — Herringbone Rotor — protected — streamlined — direct through ventilation — quiet operation — AGMA speeds — extremely long life — every unit will operate in any position.

20-page illustrated catalog... Sterling Speed-Trol, Slo-Speed, Klosd and Klosd-Tite Electric Power Drives. Write for catalog No. 210.

STERLING ELECTRIC MOTORS

Plants: New York City 51; Chicago 35; Los Angeles 22; Hamilton, Canada; Santiago, Chile
Offices and distributors in all principal cities

 Continued from page 146



Tacking Head

The Model ONB-SC high-speed tacking head is available from Curtis & Marble Machine Co., 72 Cambridge St., Worcester 3, Mass., for applications where the cloth is automatically guided through the tacker, especially in tandem with a scray and soaper or other high-speed equipment.

The head is running at 3,200 stitches per minute at the Hayward-Schuster Mills, East Douglas, Mass., on a $\frac{5}{8}$-in. stitch at approximately 50 yds. per min. With a 1-in. stitch, the cloth speed would be about 90 yds. per min.

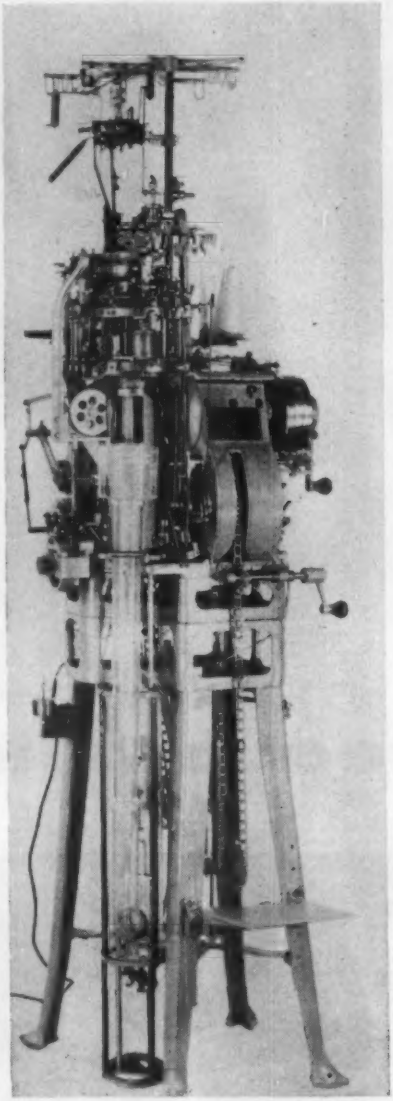
The new design was developed in cooperation with Hayward-Schuster Mills, and the mill reports that a wide range of cloth is run without frequent adjustments; so the operator has been freed for other duties while the tacking range is running.

Other features: neoprene sealed-needle bearings for all rotating parts; counterbalance eccentric, aluminum needle-bar head and guide; splash lubrication for main bearings and drive chain with oil-level indicator; porcelain thread guides and an adjustable tension device; and an enclosed chain drive. (T-19)

High-Strength Tape

A new adhesive paper tape, introduced by Behr-Manning, Troy, N. Y., is particularly suited for holding applications in the textile industry. It has high tensile strength, high tack, and freedom from adhesive deposit.

Recommended for such operations as splicing textile webs or tabbing the final lap on bolts of cloth, the No. 131 Behr-cat tape can also be used to hold protective coverings on equipment and to seal tubes and cartons. Minimum strength: 45 lbs. Stretch: 5%. (T-20)



Bolster Plates for Seamless-Hosiery Machines

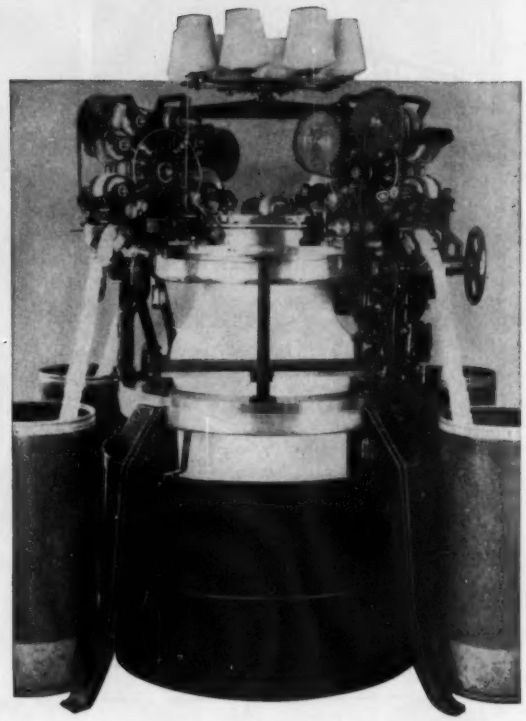
Scott & Williams, Inc., Laconia, N. H., has developed a new attachment for raising the head of the KN machine to accommodate a longer automatic tension device.

This new mechanism is useful in knitting extra-long or opera-length stockings or in using a yarn similar to Perlon, which knits stockings of longer length, off the machine, than nylon.

The new device consists of two bolster plates, one 4 ins. high and the other 6 ins. high. The plates are mounted between the legs of the machine and the frame. These bolsters, used singly or in any combination, raise the machine to different heights from 4 ins. to 12 ins. (T-21)

CONTINUED ON PAGE 228

This PILE FABRIC KNITTING MACHINE *is a* *Smart Operator!*



There's a big and growing market for fleecy, fur-like, high-pile fabric—and here's the machine that can supply it at the rate of 5 yds. of 54-inch material per hour!

HIGH PILE FABRIC KNITTING MACHINE

Takes Any Type and Size of Staple

Natural fibers as well as Orlon, Nylon, Rayon, Acrilan, Dynel or any other synthetics by themselves or in combinations with natural fibers. Staple size can range from ¾ inches and up—producing an almost unlimited number of fleecy and fur-like fabrics. Depth of pile is determined by the size of staple fed into the carding attachment . . . We will gladly arrange for a demonstration of this profit-building machine at your convenience. Inquire today for complete technical details.

WILDMAN

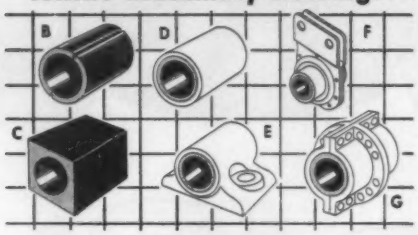
makes the machines that tend to their own knitting.

WILDMAN MFG. COMPANY, NORRISTOWN, PA.

Manufacturers of: **FULL FASHIONED HOSIERY MACHINES; CIRCULAR MACHINES FOR OUTERWEAR, UNDERWEAR, SPORTSWEAR, TRIMMINGS; STOP MOTIONS**

GRAPHALLOY
BUSHINGS
OPERATE
DRY or
SUBMERGED

The IDEAL
textile machinery bearings!



...self lubricating
...contain NO OIL

The GRAPHALLOY process was patented 40 years ago and the name GRAPHALLOY has been our copyrighted trademark since that time. While this company has been selling GRAPHALLOY for the past 40 years, recent developments have added materially to its properties.

... use GRAPHALLOY BUSHINGS for TROUBLE-FREE OPERATION in the following TEXTILE equipment!

BLEACHING	DYEING	NEUTRALIZING	SOAPING
CARBONIZING	EXPANDING	PICKING	SPINNING
CONDITIONING	FINISHING	PRESSING	STEEPING
CRABBING	FULLING	SCOURING	WASHING
DECATING	GYRATING	SINGEING	WEAVING
DRYING	MERCERIZING	SLASHING	WINDING

GRAPHALLOY BUSHINGS cut TEXTILE manufacturing costs in these ways:

- ELIMINATE OIL and OILING SCHEDULES
- PREVENT OIL AND GREASE SPOTS ON FABRICS
- AVOID WEAR ON SHAFT AND BUSHING FROM LINT AND DUST GATHERED BY OIL FILM
- OPERATE WITHOUT ATTENTION IN "INACCESSIBLE" LOCATIONS
- REDUCE FIRE HAZARD
- HAVE LONG LIFE
- EXCEL WHEN SUBMERGED. . .AS IN WASHING, BLEACHING, DYEING, CARBONIZING
- WITHSTAND HIGH TEMPERATURE (to 700°F) AS IN DRYERS, OVENS, MANGLES, and in ROTARY STEAM JOINTS

Use our 40 years of bearing experience

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Please send GRAPHALLOY BUSHING literature and Inquiry Form 107A

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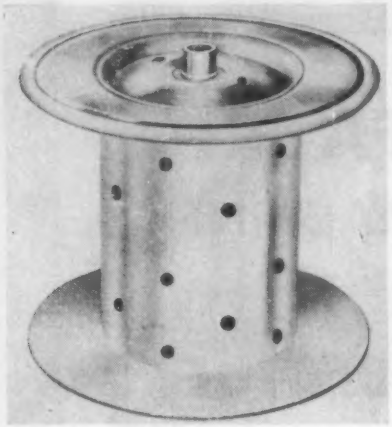
COMPANY
STREET
CITY ZONE STATE



Acropak Bobbin

The aluminum take-up bobbins introduced by Acrometal Products, Inc., 616 Fifth St. North, Minneapolis 1, Minn., can be supplied with or without perforated holes, which are for steaming. The Acropak bobbin is made to precision dimensional tolerances and is built to withstand the pressures built up in synthetics processing. (T-22)

Instant Return for IP-2

The IP-2 inclined-plane Serigraph, made by Scott Testers, Inc., Providence, R. I., has been improved with an instant-return gear box. By using the control lever, the operator can return the plane instantly to the horizontal starting position at the conclusion of a tensile-elongation test. Now the operator has the option of an instant return or a controlled return at the same rate the load was applied. (T-23)

End Seal for Expanders

A new seal for 4½- and 6-in. expanders has been designed by Mount Hope Machinery Co., 15 Fifth St., Taunton, Mass. Designed to waterproof the bearing area, the seal is precision molded in one piece to provide a close but noncontacting fit around the expander axle. Grease, injected through a cadmium-plated Alemite fitting, serves as an effective sealant. One fitting, located on the stationary axle, is provided for each side; so the expander can be lubricated while in use.

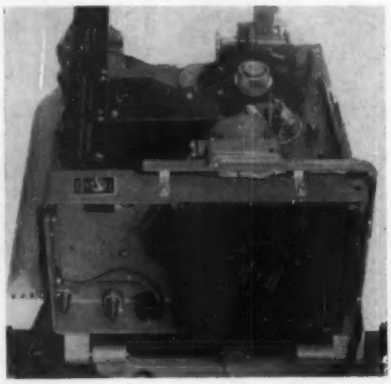
A water flinger, which throws off most moisture before it reaches the bearing area, is included as part of the seal design. (T-24)

Smaller Yarn Analyzer

A smaller yarn analyzer has been developed by Standard Electronic Research Corp., 2 East End Ave., New York 21, N. Y. The EMI model does the same job as the EMD model with the same accuracy, but it can be fitted into a cabinet that requires a 22x18-in. floor space with a height clearance of 36 ins. It can be supplied with one, two, or three scales calibrated for ± 0.010, 0.020, and 0.040 in. or any combination in between. It comes equipped with eight counters. A console model the size of a sewing machine is available. (T-25)

Extractors

Two improved Bock extractors, 50- and 25-lb. models, are available from Blake Machine Co., 0-65 Elden Place, Fair Lawn, N. J. The motors are located on the outside of the extractor for accessibility. Textile uses include silk- and rayon-soaking operations, skein drying, and extracting in hosiery dyehouses. The basket is removable and self-balancing, and spindle speed is up to 1,725 rpm. on the 50-lb. model. (T-26)



Eight-Speed Chart Drive

An improved Multi-Speed chart drive has been developed by Insco Co., Groton, Mass., for Brown Electronik single- and multirecord strip-chart recorders, for both textile-laboratory and production use.

Eight different chart speeds can be dialed, and two speed ranges are available for each recorder.

The drive mounts directly on change-gear hubs, and it is installed as easily as change gears. Time and chart paper are saved because chart speeds can be instantly changed as needed. (T-27)

CONTINUED ON PAGE 230

the
KIDDE-JOHNSON
WARP SIZER

Precise control of size temperature, drying heats, speeds and stretch. Super-press quetsch provides uniform moisture extraction. Visual stretch indicator reveals degree of stretch as warp passes through. Adjustable width beam carriages. Stainless steel size box, immersion, quetsch and idler rolls, and cylinders. Available with 7, 9, 11 or more cylinders for either silk or cotton system warping or combinations of both.

Do your slashers meet these 5 tests?

1. Do they give you warps on which the amount of size is even from one end to the other and uniformly dried so that there is no trace of streaks?

2. Do they give you visual, fingertip control of stretch so that you can get uniform stretch through the entire warp or a whole series of warps?

3. Do they give you hard, smooth loom beams that do not make trouble for the weave room nor reduce loom efficiency?

4. Do they perfectly size any fiber you want to put through them, cotton or synthetic, spun or filament?

5. Do they run without breakdowns, 24 hours a day, turning out a steady stream of all the warps your weaving department needs?

If they do . . . *then they must be KIDDE-Johnsons!* If not, write us today for complete details of this world-famous warp sizer.

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS
BEAMERS • CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS

Kidde

MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

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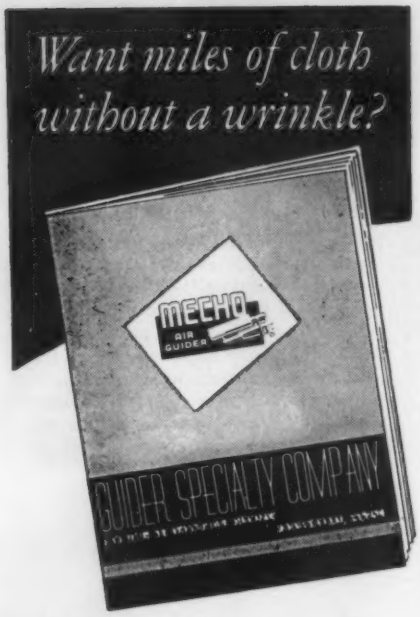

THIS BOOK IS FOR **YOU** *if you want better* **FABRIC GUIDING**

This Book does MORE than just illustrate and describe the MECHO Air Guider.

It shows how the Mecho Air Guider will simplify your guider problems, reduce maintenance costs, increase guiding efficiency.

See for yourself why you need never have any more double edges, spattering or costly shutdowns . . . and how the Mecho can be adjusted, WHILE IN OPERATION, to handle from Number 8 duck down to the finest lightest fabrics.

There are 15 closeup views of mechanism, showing methods of adjustment, mountings, operating principles. You get a liberal education in modern fabric guiding! Write for your copy of the "Mecho" Air Guider "textbook" today.

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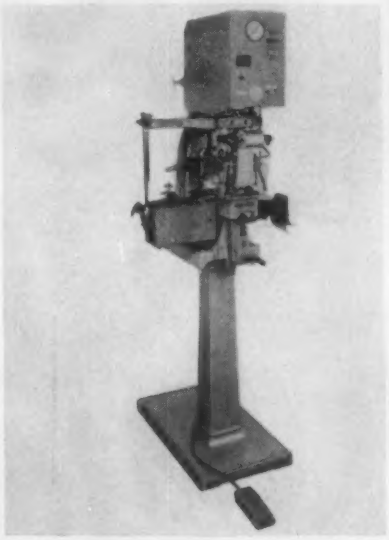
McSPADDEN & SCANTLAND
P. O. BOX 3635 CHARLOTTE 3, N. C.

MECHO AIR GUIDER

Moisture-Monitor Controllers

Two automatic controllers, SC-500 and SC-550, are offered as plug-in units for Moisture Monitors now in service on slashers and finishing machinery. Strandberg Engineering Laboratories, 416 W. Market St., Greensboro, N. C., makes the instruments. Indicator lights on the front panel of the controllers show every action for moisture control, alarms, and stop motions. No modifications to the Moisture Monitor are necessary. (T-28)



Label Embosser

Trademarks, tradenames, and other designs can be embossed on heel pads, three-quarter sock linings, and similar articles with a new machine developed by Markem Machine Co., Keene 49, N. H. Equipped with conveyor feed and ejection for rapid production and operator safety, the Model 79A prints from 20 to 80 objects per minute. Air operated, it requires no adjustment for variations in stock thickness.

The printing head can be equipped with self-adjusting die jaws for solid-embossing dies, or it can be provided with a slide-in masterplate head to allow interchanging of variables. A lock-up chase for use with individual metal type can be used on advertising novelties. Thermostatic control of the printing head and high-quality leaf provide durable, attractive imprints in gold, silver, or colors.

The machine is mounted on a column stand: height: 65 ins. Minimum air required: 35 lbs. (T-29)

Redesigned Abrasion Tester

A smaller CSI surface abrader for abrasion and pilling tests has been developed by Custom Scientific Instruments, Inc., Arlington, N. J. To get a smaller unit at reduced cost, smaller castings are used and the air pump has been eliminated. The abrader produces uni- or multidirectional abrasion of uniform intensity over the abraded area. (T-30)

Label Printer

The Rotor-Kimco, a label-printing machine, will imprint all kinds of labels, tags, and tickets at 150 per minute. Available from A. Kimball Co., 307 W. Broadway, New York 13, N. Y., the machine works from metal logotype or sticky-back rubber mats. Label size: 1x$\frac{3}{8}$ to 6$\frac{5}{16}$x4$\frac{3}{8}$ ins. (T-31)

Rubber-Repair Material

A self-vulcanizing rubber-repair patch for rubber conveyor belts and rubber-covered electrical cables has been announced by Flexible Steel Lacing Co., 4607 Lexington St., Chicago 44, Ill. No heat is necessary. (T-32)

Anticorrosion Coating

A hot-spray vinyl coating for corrosion control, developed by Prufcoat Laboratories, 50 E. 42nd St., New York 17, N. Y., provides anticorrosion control for structural steel, equipment, floors, and walls against acids, strong caustics, bleaching agents, and other textile chemicals (T-33)

Colloid-Graphite Lubricant

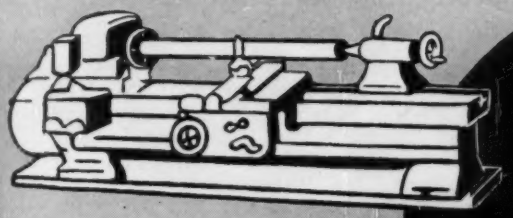
A jet-propelled lubricant that reaches trouble spots has been developed by Gebauer Chemical Co., Cleveland, Ohio. The nonflammable lubricant is made of colloidal graphite in such fine suspension that it remains floating in a petroleum base. (T-34)

Condenser Cleaner

Thomas C. Wilson, Inc., 21-11 44th Ave., Long Island City, N. Y., has placed on the market a Blo-Gun condenser cleaner. The air- or water-operated cleaner is useful for removing soft deposits, such as mud, algae, and similar accumulations, from condensers in steam power plants and process industries. (T-35)

CONTINUED ON PAGE 232

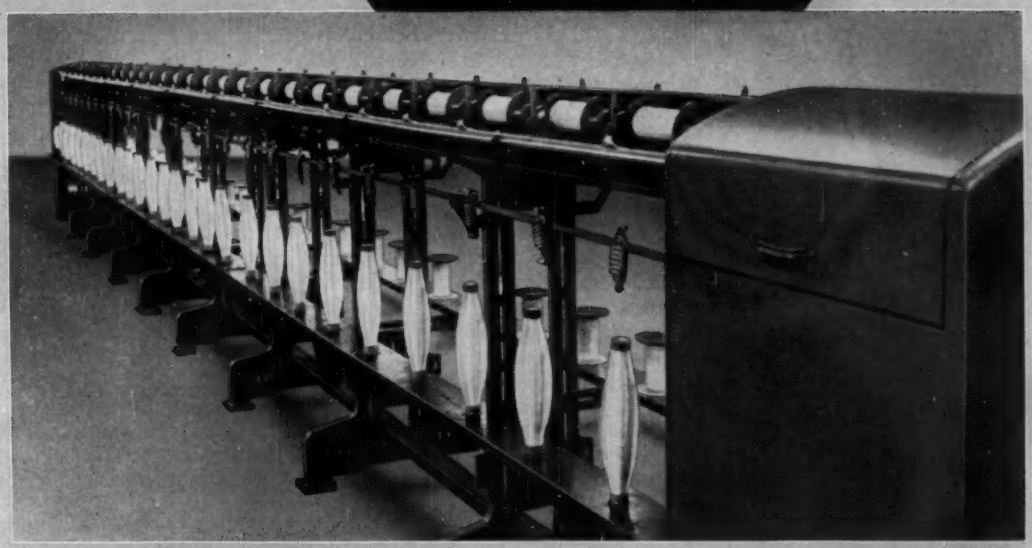
WE TOOK THE LATHE PRINCIPLE AND APPLIED IT TO WINDING



RESULT...

THE NEW *Fletcher*

SPEEDEX WINDER



FOR SMOOTH UNIFORM PACKAGES WOUND AT VERY HIGH SPEEDS

CONVENTIONAL SPOOLS PRECISION MADE WITH

18 to 600 Winds Per Traverse

DOUBLE TAPER TUBES for Shipping or Shrinking

BUILDER MOTIONS FOR THESE POPULAR PACKAGES

TAPER TOP SPOOLS for Twisting or Warping

The Ultimate in Flexibility, Simplicity, and Clearness

available with: Variable Speed Drive, Full Bobbin Stop Motion
Oil Application Rolls

FLETCHER WORKS

423 GLENWOOD AVE. PHILADELPHIA 40, PA. ESTABLISHED-1850

***Southern Representative*—F. W. Warrington, Johnston Bldg., Charlotte, N. C.**

Spring for Bobbin Spools

A new spring for the No. 50 winder, developed by Universal Winding Co., Providence, R. I., fits both plastic and paper bobbin spools. The spring is used on the spindle sleeve of the No. 50 bobbin-spool attachment to allow both types of spools to be used. (T-36)

Flatlock Machine

The newest Flatlock machine for knit goods developed by Willcox & Gibbs S. M. Co., 214 W. 39th St., New York 18, N. Y., features automatic lubrication that eliminates the oiling of 20 points. The machine operates at speeds up to 4,000 stitches per minute. (T-37)

Power Unit for Pipe Tools

For power operation of hand pipe tools, a small lightweight power drive on a folding tripod has been announced by Ridge Tool Co., Elyria, Ohio. Legs and tray fold in compactly for easy carrying by a built-in handle. The unit is equipped with a speed chuck guaranteed to grip any pipe, conduit, or rod tightly forward or reverse. A centering device automatically centers and holds pipe. (T-38)

Electric Chain Hoist

The CM Lodestar, a new hoist, features shockproof push-button control, sealed-in lifetime lubrication, self-adjusting heavy-duty brake, overload protection, fully enclosed and protected components, safety limit switches, light weight, compact size, and low headroom. It is available from Chisholm-Moore Hoist Div., Columbus McKinnon Chain Corp., Tonawanda, N. Y. Prices start at $149.50. (T-39)

Pipe Covering

An improved plastic-cork pipe covering, known as NoDrip Tape and available from J. W. Mortell Co., Kankakee, Ill., stops cold water pipe drip without overwraps. (T-40)

Testing Oven

A forced-draft oven called Isotemp is available from Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa. The oven, which is used for moisture assays and conditioning tests, reaches 105° C. in about 40 mins. and has a shelf space of 1,000 sq. ins. (T-41)

Fluorescent Lamp

Quicker perception of fine detail, elimination of eye-strain in visual tasks, and reduced eye fatigue are claimed for a new fluorescent lamp, called See-E-Zee, introduced by Verd-A-Ray Corp., Toledo, Ohio. The lamp fits all standard fixtures. (T-42)

Compressor

A duplex compressor, a two-stage, heavy-duty, water-cooled, angle-type machine, in capacity range of 797 and 974 cu. ft. per min. piston displacement, and 125 and 150 hp., has been developed by Pennsylvania Pump & Compressor Co., Easton, Pa. (T-43)

Torque Converter

Fluomatic, a fluid torque multiplier for gasoline or electric motors under 10 hp., has been announced by Little Beaver Industries, Willoughby, Ohio. Fluomatic eliminates shock starting or stopping and gives full, easy-power take-offs on intermittent or power loading. Application: hoisting devices and similar equipment. (T-44)

Program Controller

Direct time settings on a large, easily read time dial and pins set at corresponding intervals in step disks are features of the Flex-O-Timer, developed by Taylor Instrument Cos., Rochester 1, N. Y. The instrument is used for precise timing and coordination of batch processes. It automatically initiates and stops successive steps in a stop-and-go sequence. (T-45)

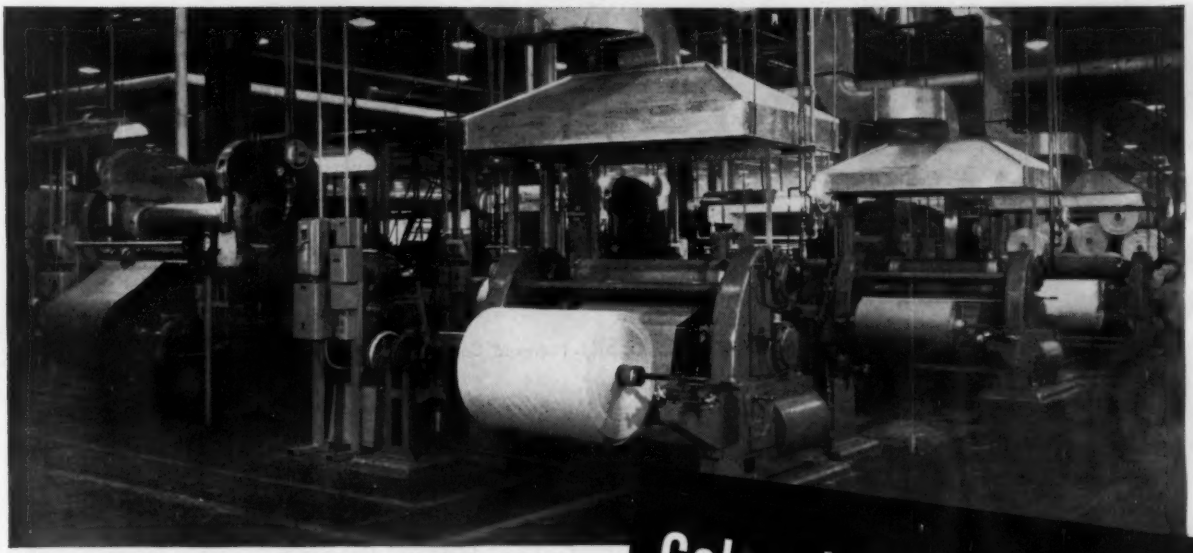
Pressure Pilot

The Hammel-Dahl Co., 175 Post Rd., Providence 5, R. I., has announced the Model 110 pressure pilot. Featuring a self-contained design, it has an integral gauge for process-pressure indication and provides direct setting of the control point on the same calibrated gauge dial. (T-46)

Box Truck

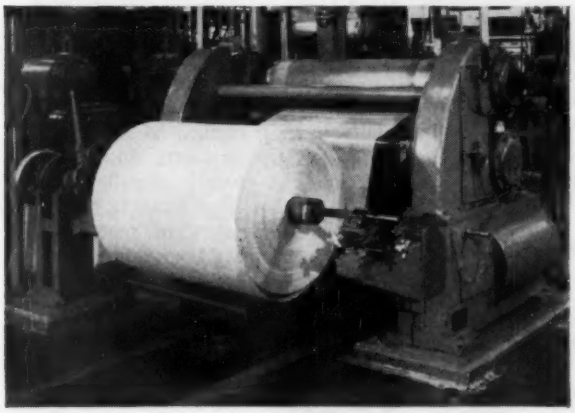
A steel box truck for handling production work and for warehouse duty has been developed by Western Metal Bed Co., Inc., 3000 E. Hedley St., Philadelphia, Pa.

The BTS3 truck has over-all dimensions of 42 ins. long x 24 ins. wide x 30 ins. high and holds 10 bushels. Price: $37.50. (T-47)

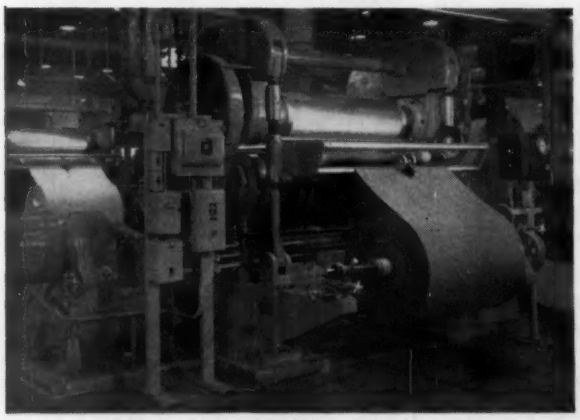


View of finishing operation at The Springs Cotton Mills, Grace Bleachery Division showing Appleton Machine Company 20 Ton Embossers and 50 Ton Schreiner Calenders.

Colonel Elliott Springs Chooses Appleton



One of three Appleton 20 Ton Embossers in use at The Springs Cotton Mills, Grace Bleachery Division.



One of three Appleton 50 Ton Schreiner Calenders specially adapted for everglaze finishes at Springs Cotton Mills, Grace Bleachery Division.

The uncommon elegance of Springmaid sheets can be attributed to Colonel Elliott Springs' shrewd judgment of textile machinery.

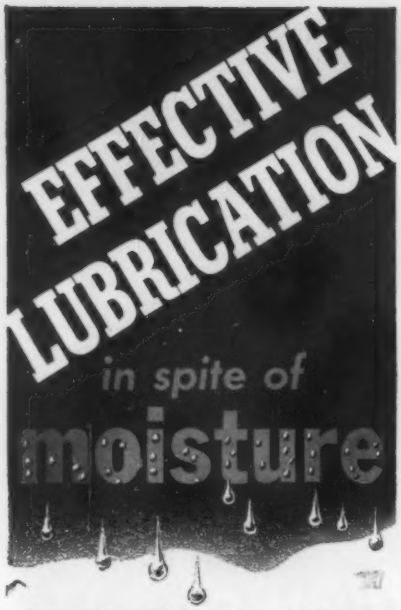
According to a trade journal article, the famous Springs Cotton Mills owner demands equipment that meets these requirements:

1—It must be modern.
2—It must be well made.
3—It must be the best available.

There never was a better time to invest in efficient equipment. If you would like to own the finest embossers or calenders in the industry, write or call an Appleton representative today. He will gladly analyze your needs, *without obligation.*

A
APPLETON MACHINE COMPANY
APPLETON WISCONSIN

CUSTOM-BUILDERS OF TEXTILE CALENDERS • CALENDER ROLLS OF ALL KINDS



LUBRIPLATE Lubricants provide superior lubrication even in the presence of moisture and steam. They permit high speed operation, have exceedingly long life and do not break down. There is a LUBRIPLATE Lubricant, ranging from the lightest oils to the heaviest greases, to meet every requirement of the textile industry.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

9-Point Checklist For RUBBER-HOSE Life

- **Select the right hose**
- **Protect hose against failures**
- **Reduce over-all hose costs**

By J. A. MULLER, Thermoid Co.

REPLACEMENT OF RUBBER HOSE runs into a lot of money each year in an average-size plant. Many hose are poorly selected for the job they're meant to do, and then they're carelessly handled after they're put in use. For reduced hose costs and more satisfactory performance, follow this nine-point checklist:

1. Material carried. If the hose carries any kind of petroleum product, select a hose that's compounded to resist attack by oil, grease, or gasoline. Several standard types of hose designed for this kind of service are available.

Hose used for paint and insecticide spray must be built to resist the various solvents incorporated in the new paints and insecticides. Many kinds of diluted acids can be carried by rubber hose, but you should be sure the hose you're using is designed for the acid.

Solids carried, either dry or in a slurry, require a hose tube composed of the pure-gum-rubber type to resist abrasion; and if the slurry solution contains acid, petroleum, or other solvents, various additives must be compounded into the rubber to resist them.

2. Hose Size. The inside diameter must be adequate to carry the volume of material required. A hose too small develops excessive pressures, and less than the required amount of material is carried. Too large a hose increases costs and gives a poor, irregular flow.

3. Pressure. If you're using higher pressures than the hose was designed for, your hose costs are excessive. Avoid pulsating pressures; keep the pressure constant.

A vacuum or suction hose requires a spiral- or ring-type reinforcement in the carcass to prevent hose collapse under suction.

4.–Temperature. High and low temperatures must be watched. High-temperature applications require special rubber compounds and asbestos or other heat-resisting material in the carcass.

Don't run both hot and cold material through the same hose. Constant heating and cooling cause cracks in the rubber tube and cover. If possible, drain a hose carrying hot steam after it's used in order to prevent pocketing of condensate. Hose not drained of steam eventually blister.

5. Bending radius limits. The most-common fault in stringing hose across an area is suspending it off the floor or ground by metal projections with too little bearing surface. Nails are one example; they should not be used because their diameter is too small. Hose supported on small projections bend at the projection point; and the cross section of the hose is reduced, resistance to flow is increased, and unnecessary turbulence is set up.

Use saddle-type supports with adequate bearing surface to support the hose. Put the supports close enough together to evenly distribute the weight so that large hanging loops do not affect the flow of material. A properly supported hose is not strained by its own weight.

The bending radius of most industrial hose is approximately 1 ft. for every inch of inside diameter.

6. Length. A hose should be designed to avoid stretching. Stretching weakens a hose and puts unnecessary strain on the coupling. Too much length runs up the hose cost and permits snagging and kinking.

7. Twisting. Avoid twisting, especially in short lengths of hose. Twisting separates the reinforcement from the tube and cover and may even weaken the structure.

8. Couplings. Use the correct type of couplings, and install them correctly. Maintain them properly by tightening them periodically and checking them for leaks. When the service requires frequent disconnecting, use couplings designed for fast and easy disconnecting.

9. Protection against accidental damage. In traffic areas, protect the hose against trucks. When hose is not being used for a long time, drain it, wipe it clean of oil or grease, and store it in loose coils flat on the floor out of the weather.

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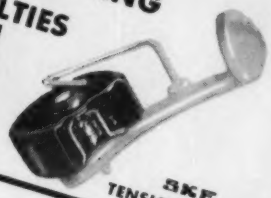

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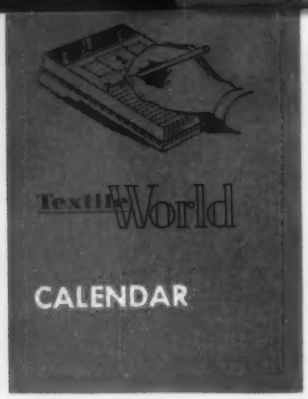


May

The Fiber Society, spring meeting, School of Textiles, Alabama Polytechnic Institute, Auburn, Ala., May 4 and 5.

Cotton Merchandising Clinic, Cotton Economic Research, The University of Texas, Austin, Tex., May 6 and 7.

International Silk Congress, Brussels, Belgium, May 9 to 14.

AATCC, South Central Sect., Hotel Patten, Chattanooga, Tenn., May 14.

American Materials Handling Society Exposition, International Amphitheater, Chicago, Ill., May 16 to 20.

Textile Institute, annual conference, Caxton Hall, London, England, May 17 to 20.

AATCC, New York Sect., Kohler's Swiss Chalet, Rochelle Park, N. J., May 20.

AATCC, Philadelphia Sect., Manufacturer's Golf & Country Club, Oreland, Pa., May 20.

National Assn. of Wool and Worsted Overseers, semiannual convention, Hotel Bancroft, Worcester, Mass., May 20 and 21.

South Carolina Textile Manufacturers Assn., annual meeting, The Cloisters, Sea Island, Ga., May 26 to 28.

June

Tufted Textile Manufacturers Assn., annual convention, Park Sheraton Hotel, Washington, D. C., June 2 to 4.

AATCC, Pacific Southwest Sect., Gourmet Restaurant, Beverly Hills, Calif., June 3.

AATCC, Southeastern Sect., Radium Springs, Ga., June 3 and 4.

Philadelphia Textile Institute, alumni day and reunion and commencement, Philadelphia, Pa., June 9 to 11.

AATCC, Piedmont Sect., Mayview Manor, Blowing Rock, N. C., June 10 and 11.

AATCC, Midwest Sect., Lake Lawn Lodge, Delawan, Wis., June 11.

Iowa Management Course, State University of Iowa, Iowa City, Iowa, June 13 to 25.

Southern Textile Association, annual convention, Mayview Manor, Blowing Rock, N. C., June 16 to 18.

Materials Handling Exposition, International Amphitheater, Chicago, Ill., June 16 to 20.

International Textile Exhibition, Brussels, Belgium, June 25 to July 10.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26 to July 1.

International Congress of Scientific Research in the Textile Industry, The Centre Scientifique et Technique de l'Industrie Textile Belge, 24, rue Montoyer, Brussels, Belgium, June 27 to 29.

American Institute of Electrical Engineers, Textile Subcommittee, summer meeting, Swampscott, Mass., June 27 to July 1.

July

AATCC, South Central Sect., Lookout Mountain Hotel, Chattanooga, Tenn., July 29 and 30.

August

International Wool Textile Research Conference, Sydney (four days), Geelong (five days), and Melbourne (five days), Australia, Aug. 22 to Sept. 9.

September

Machine Tool Show, International Amphitheater, Chicago, Ill., Sept. 6 to 17.

The Fiber Society, fall meeting, Mass. Institute of Technology, Cambridge, Mass., Sept. 8 and 9.

AATCC, Southeastern Sect., Ralston Hotel, Columbus, Ga., Sept. 10.

AATCC, Western New England Sect., Rapp's Restaurant, Shelton, Conn. Sept. 16.

Combed Yarn Spinners Assn., annual meeting, The Homestead, Hot Springs, Va., Sept. 16 and 17.

Chemical Finishing Conference, National Cotton Council, Chalfonte-Haddon Hall, Atlantic City, N. J., Sept. 20 and 21.

AATCC, national convention, Chalfonte-Haddon Hall, Atlantic City, N. J., Sept. 21 to 23.

Northern Textile Assn. and National Assn. of Cotton Manufacturers, annual convention, Wentworth-By-The-Sea, Portsmouth, N. H., Sept. 29 and 30.

Textile Methods and Standards Assn., fall meeting, Clemson House, Clemson, S. C., Sept. 29 and 30.

October

Alabama Textile Operating Executives, Thatch Hall, Alabama Polytechnic Institute, Auburn, Ala., Oct. 1.

AATCC, Pacific Southwest Sect., Gourmet Restaurant, Beverly Hills, Calif., Oct. 7.

North Carolina Textile Manufacturers Assn., annual meeting, Carolina Hotel, Pinehurst, N. C., Oct. 13 and 14.

National Council for Textile Education, fall meeting, sponsored by American Textile Machinery Assn., The Larches, Hopedale, Mass., Oct. 17 to 19.

AATCC, Philadelphia Sect., Penn-Sherwood Hotel, Philadelphia, Pa., Oct. 21.

The Quartermaster Assn., annual convention, Conrad Hilton Hotel, Chicago, Ill., Oct. 27 and 28.

AATCC, Piedmont Sect., Hotel Barringer, Charlotte, N. C., Oct. 29.

November

AATCC, Western New England Sect., Hartford, Conn., Nov. 4.

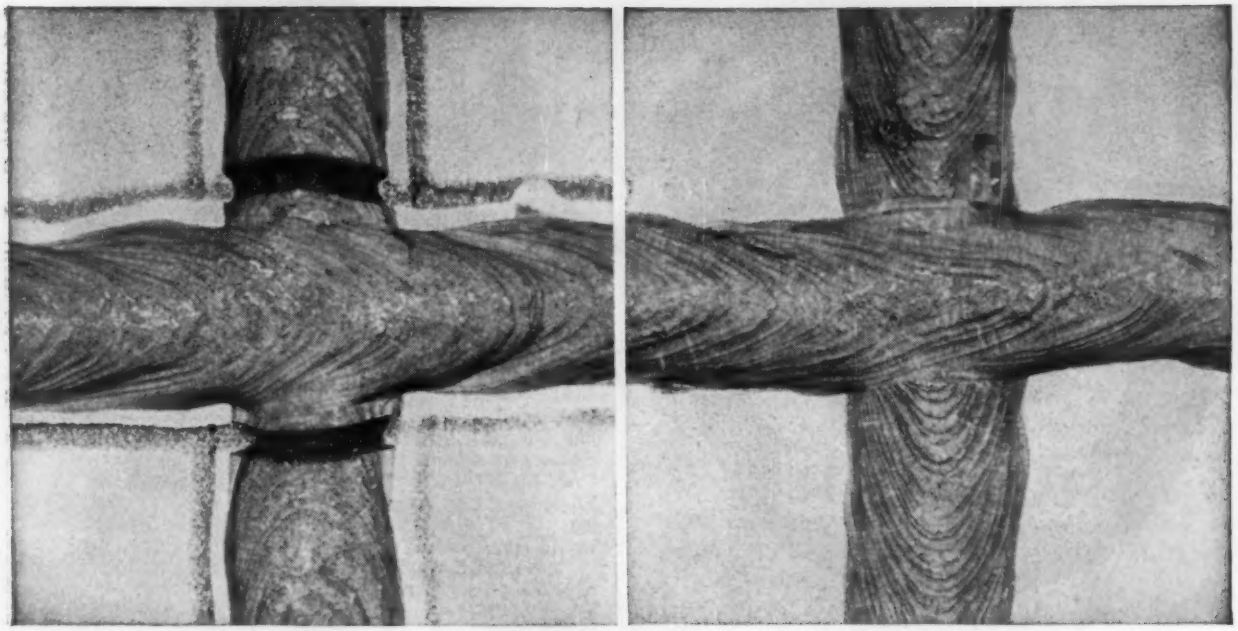
December

AATCC, Philadelphia Sect., Kugler's Restaurant, Philadelphia, Pa., Dec. 2.

AATCC, Southeastern Sect., Atlanta Biltmore Hotel, Atlanta, Ga., Dec. 3.

AATCC, South Central Sect., Hotel Patten, Chattanooga, Tenn., Dec. 10.

AATCC, Western New England Sect., Rapp's Restaurant, Shelton, Conn., Dec. 16.



Two welded samples were tested for three 4-hour periods in a solution of 10% nitric and 3% hydrofluoric acid at 176 F. Specimen at left showing acid attack alongside welds is regular Type 304; specimen at right, free from acid attack, is Armco 18-8 ELC (Type 304L).

PROTECT WELDED STAINLESS EQUIPMENT AT LESS COST WITH ARMCO ELC

You needn't take chances on carbide precipitation adjacent to welds in textile equipment. Armco offers two extra-low carbon (ELC) stainless steel grades that are completely satisfactory for service in welded equipment up to 800 F. They are:

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THEY SAVE YOU MONEY

Armco 18-8 ELC costs less than the columbium- or titanium-stabilized Types 347 and 321, yet insures the same freedom from intergranular corrosion in the recommended temperature range as the more expensive types. The Armco ELC types are produced in sheets, strip, plates, bars and wire.

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ALLIED CHEMICAL & DYE CORP., New York, N. Y.—Has named John K. Boykin resident manager for National Aniline Div. at Charlotte, N. C., and T. M. Ferguson resident manager at Atlanta, Ga., for the same division. . . . **AMERICAN MONORAIL CO.**, Cleveland, Ohio—Has named Newell Equipment Co., Birmingham, Ala., as its distributor in that area. C. P. Newell heads the operation. J. L. Brown has been named sales engineer for the Industrial Div. at Charlotte, N. C. . . . **AMERICAN VISCOSE CORP.**, Philadelphia, Pa.—Has named Vernon D. Wheat assistant to the head of the Knitting Div., Textile Research Dept., and C. E. Silling, Jr., a production development engineer. . . . **BARBER-COLMAN CO.**, Rockford, Ill.—Has named H. V. King and Harold Sieber to the Philadelphia, Pa., office of Wheelco Instruments Div. D. Combellack had been named to the Atlanta, Ga., office. Henry Hoffman has been named manager of the Wheelco office in Columbus, Ohio. . . . **H. W. BUTTERWORTH & SONS CO.**, Bethayres, Pa.—Has completed arrangements for the sale and servicing of textile machinery made in Germany by A. Monforts Maschinenfabrik. . . . **CELANESE CORP. OF AMERICA**, New York, N. Y.—Has transferred L. P. Wenzell to the new position of manager of Special Industrial Developments, Market Development Dept., Textile Div. . . . **COLLINS BROS. MACHINE CO.**, Pawtucket, R. I.—Has announced the retirement of Benjamin F. Collins, vice president and part owner. Henry Collins and Karl H. Inderfurth have acquired Mr. Collins' interest in the company. . . . **E. I. DU PONT DE NEMOURS & CO., INC.**, Wilmington, Del.—Has appointed Dr. Kenneth C. Johnson technical manager of the dyes sales division of the Organic Chemicals Dept. Harry F. Clapham has been appointed assistant technical manager and Harold L. Sager manager of the textile section. . . . **EXCELL-O CORP.**, Detroit, Mich.—Has appointed Oscar L. Bard and Earl E. Conlin to the board of directors. The company has acquired the Michigan Tool Co., Detroit, Manistee, and Traverse City, Mich., and a subsidiary, Colonial Tool Co., Windsor, Canada. . . . **ROBERT GAIR CO., INC.**, New York, N. Y.—Has started a large-scale expansion program in the South. . . . **GENERAL ELECTRIC CO.**, Pittsfield, Mass.—Has appointed Dr. John A. Loritsch manager of the Chemical Materials Dept., Alkyd Products Plant, Schenectady, N. Y. Dr. A. Eugene Schubert has been named manager of engineering of the Chemical Materials Dept. Theodore C. Ohart has been named manager of marketing of the Silicone Products Dept. . . . **B. F. GOODRICH CHEMICAL CO.**, Cleveland, Ohio—Has

ALBERT C. MARBLE (left) has been elected chairman of the board of Curtis & Marble Machine Co., Worcester, Mass. DAVID B. BRINTON (center) has been elected sales manager and WHITMAN D. IDE (right) has been elected general manager of the Brinton Fabrics Machine Div. of Scott & Williams, Inc., Laconia, N. H.

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Steel cage, metric series roller assembly with solid inner and outer race.

Steel cage, inch series, roller assembly, hardened or unhardened, no inner or outer race.

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Spindles, lickers in, card cylinders, feed rolls, cylinder shafts, all work better on anti-friction bearings, and all require a bearing specifically adapted to the space, speed, load, over-load, torque, temperature, lint and many other factors.

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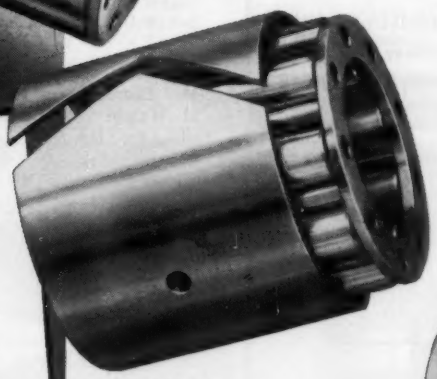
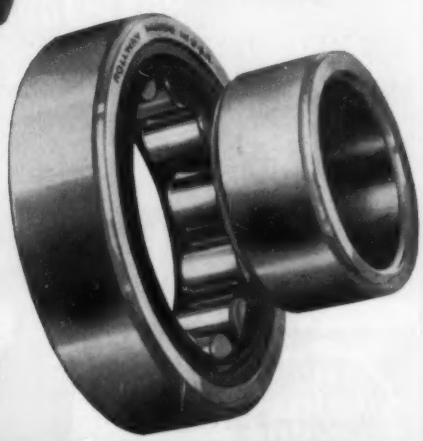
Syracuse, N. Y.





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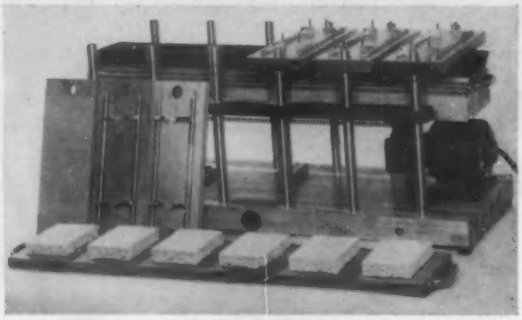
PILLING TESTER



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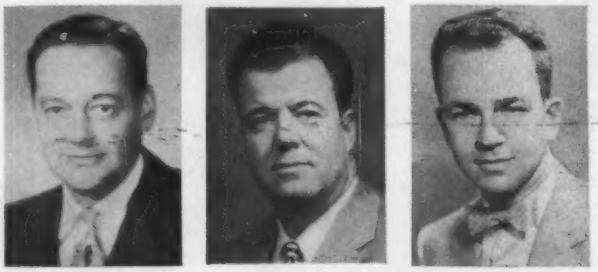
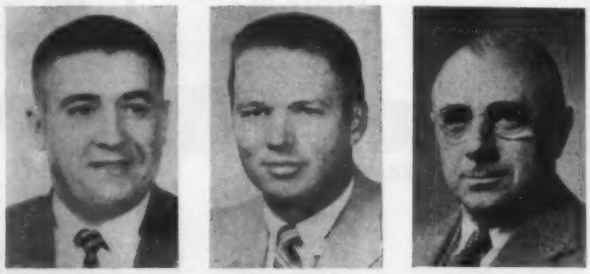
NEWS ABOUT SUPPLIERS Continued

named L. L. Shailer, Sr., production engineer in charge of sales development of hydrophilic polymers and R. E. Score, Sr., product engineer in charge of sales development of surfactant materials. . . . **GREENSBORO LOOM REED CO.**, Greensboro, N. C.—Has put its new laboratory and plant for the manufacture of hard industrial chromium plating into operation. . . . **HART-MOISTURE-METERS**, New York, N. Y.—Has moved its offices and laboratory to a new building in Babylon, L. I., N. Y. . . . **INTERCHEMICAL CORP.**, Textile Colors Div., Hawthorne, N. J.—Has named Haven A. Morrison a technical representative in New England, with offices in Pawtucket, R. I.



HAROLD C. ROBINSON (left) has been named salesman for H. F. Livermore Corp., Boston, Mass., in North Carolina, South Carolina, and Virginia. WILLIAM F. WELCH (center) has been named to handle development and customer service work in the application of Chemigum latices for Goodyear Tire & Rubber Co., Chemical Products & Materials Development Div., Akron, Ohio. DONALD S. SCHULTZ (right) has been transferred to the Charlotte, N. C., office of Micro Switch Div. of Minneapolis-Honeywell Regulator Co., Freeport, Ill.

. . . **MINNESOTA MINING & MFG. CO.**, St. Paul, Minn.—Has named Louis F. Weyland sales director, succeeding George H. Halpin . . . **PROCTOR & SCHWARTZ, INC.**, Philadelphia, Pa.—Has announced the resignation of H. Raymond Zayotti as manager of the New England Sales & Service Branch, Newton Upper Falls, Mass. Ballagh & Thrall, Philadelphia, have been appointed export managers for the company. . . . **SCOTT & WILLIAMS, INC., BRINTON FABRICS MACHINE DIV.**, Laconia, N. H.—Has appointed George McDowell and Joseph Olachea sales engineers. . . . **SKF INDUSTRIES, INC.**, Philadelphia, Pa.—Has acquired controlling interest in Tyson Bearing Corp., Masillon, Ohio. . . . **SONOCO PRODUCTS CO.**, Hartsville, S. C.—Will establish a new branch plant in Longview, Tex. James L. Henderson has been named resident manager. . . . **STEEL HEDDLE MFG. CO.**, Philadelphia, Pa.—Has acquired Glover-Southern, Inc. The officers of Stedco Southern, Inc., are H. W. Fehr, president; J. J. Kaufmann, Jr., executive vice president; J. B. Bowen, vice president; A. P. Jones, secretary and treasurer. . . . **G. H. TENNANT CO.**, Minneapolis, Minn.—Has elected Orville C. Hognander to the board of directors. . . . **VEEDER-ROOT, INC.**, Hartford, Conn.—Has appointed Allan L. Burton research director. . . . **WHITIN MACHINE WORKS**, Whitinsville, Mass.—Has elected E. Kent Swift, Jr., to the board of directors.



ROBERT T. REGAN (left) has been named district manager in Philadelphia, Pa., for Anheuser-Busch, Inc., Corn Products Div., St. Louis, Mo. R. MICHAEL TURNER (center) has been named to represent Marquette Metal Products Co., Cleveland, Ohio, in Clinton, S. C. V. E. ATKINS (right) has been named general manager of the Organic Chemicals Div. of American Cyanamid Co., New York, N. Y.

The Shadow And The Substance

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When you carry your own receivables, you are confronted with irritating intangibles. You cannot forecast what percentage of your outstandings will be collected on due date . . . what part will be 30 or 60 or 90 days slow . . . or what part will *never* be collected . . . or exactly what the bookkeeping collection cost will be. But when you are Factored by Crompton you know to the penny what our charges are. You know that we assume all the credit risks, clerical chores, and collection costs. More important: you know that we transpose your daily receivables into immediate and continuous cash. All this is tangible, substantial, and dependable.

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High-capacity ribbon looms for all rayon, silk, and cotton ribbons, elastic tapes and webbings.

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Representation: Ernest L. Frankl Associates
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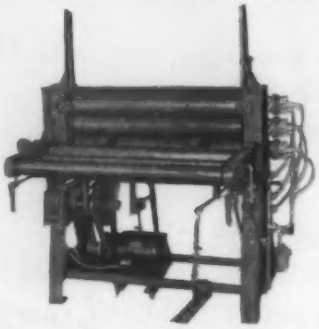
UTICA 3-Roll Calender

for Steaming
and Calendering
TUBULAR
KNITTED
FABRICS



This fast, efficient 3-roll calender has heated rolls, with patented rotary joints, and flexible metal hose, eliminating packing. A stream of live steam comes in contact with cloth only as it passes over the spreader. A foot pedal to lift rolls apart frees hands to start cloth.

The vari-speed motor is easily and quickly adjusted to any speed. Comes complete. Standard machines made in 36", 42", 48", and 54" width rolls. To special order 60", 66", and 72". For full details on this money and labor saving machine, write today.

2-Roll Calender—Made with heated or cold rolls, plain or felt covered. Has foot pedal to lift rolls apart. Comes complete in same sizes of rolls as 3-roll machines.

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Builders of Textile Machines Since 1903

Look to NOONE for the Newest Slasher Cloth Developments

At last--an entirely *new* Slasher Cloth, with a well-cushioned body that assures far better slashing of yarn . . . unexcelled starch penetration . . . and greater resistance to abrasion! Extra high tensile strength minimizes tearing. Chemically treated--*at your option without extra charge*--to hold shrinkage at a minimum . . . combat chemical attack and increase service life. Made only from precision-blended, long length, finely selected wools, with rigid quality control in manufacture.

. . . and for All Your Industrial Textile Requirements

✓ **CLEARER CLOTH** . . . all wool or cotton back; highest quality—yet, low in price.

✓ **ROLLER CLOTH** . . . complete range of types, sizes, weights; all wool or part cotton.

✓ **LAPPING CLOTH** . . . cotton warp; either all wool, or part synthetic filling.

✓ **OTHER SPECIALTY WOVEN FABRICS** . . . developed at your request.

KENWOOD TEXTILE PRODUCTS

NOONE INDUSTRIAL FABRIC DIV.
KENWOOD MILLS
Peterborough, New Hampshire
The oldest manufacturer of woven industrial fabrics in America

COTTON MILLS

Belrug Mills, Inc., Greenville, S. C., plans to double its present facilities. Cost is estimated at $400,000. Daniel Construction Co., Greenville, is the architect.

Berkshire Fine Spinning Associates, Inc., Providence, R. I., and **Hathaway Mfg. Co.**, New Bedford, Mass., have merged under the name of Berkshire Hathaway, Inc.

Berven Carpets Corp., Fresno, Calif., will build a branch tufting mill at Dalton, Ga.

Collins & Aikman Corp., New York, N. Y., has purchased Mayfair Chenille Co., Inc., Calhoun, Ga., in order to enlarge its production of tufted products. William H. Sparks will be general manager of this division.

Falls Mfg. Co., Granite Falls, N. C., has a $500,000 modernization program under way that is expected to be completed this summer. New machinery includes 18 Saco-Lowell Gwaltney spinning frames and four Saco-Lowell slubbers for Mill No. 2. Drawing will be changed to three over four with 14x36 cans. In Mill No. 1, 24 frames with Whitin change-overs, a Parks-Cramer overhead cleaner, and a Barber-Colman spooler have been installed.

Fieldcrest Mills, Inc., Spray, N. C., has installed an additional Du Pont J-Box in its towel-mill bleachery. The addition of this new equipment will provide a continuous single-stage bleaching range.

Graniteville Co., Graniteville, S. C., plans to build a four-story, 150x160-ft. addition to its Hickman Mill that will provide 100,000 additional sq. ft. of operating space. About 17,000 new spindles and 240 new looms will be installed.

Huntsville Mfg. Co., Huntsville, Ala., has included the air conditioning of its weave room in its 1955 modernization program. American Moistening Co., Providence, R. I., is the contractor. A new floor and new lighting will be installed.

Joanna Cotton Mills, Joanna, S. C., has a $300,000 construction and expansion program under way. A 75x108-ft., two-story addition is being built. The spooling and warping equipment will be modernized and some new machinery will be installed.

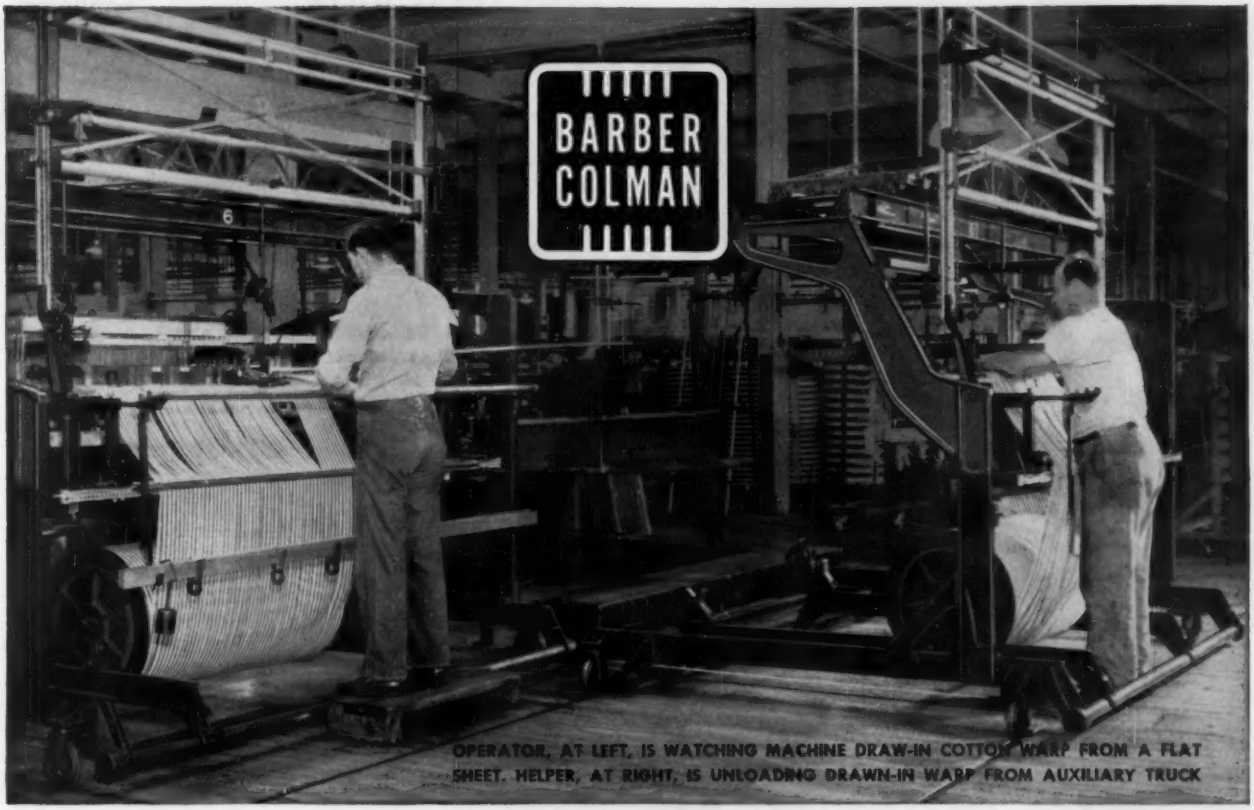
Judson Mills, Greenville, S. C., has purchased 8 combers and 65 spinning frames, totaling 19,500 spindles, from Whitin Machine Works. Installation will take place late this year.

Louisville Textiles, Inc., Louisville, Ky., has purchased several Crompton & Knowles fancy looms for weaving upholstery, drapery, casement, and other specialty fabrics.

Union Mills Co., Monroe, N. C., is planning an expansion program that will provide an additional 72 ft. on the west side of its building. Additional machines will be installed.

Wabasso Cotton Co. Ltd., Grand 'Mere, Que., is constructing a one-story extension, 120x180 ft. Deakin & Stewart Ltd., Montreal, is the general contractor. The cost is estimated at $20,000.

Waverly Mills, East Laurinburg, N. C., has started work on a new addition that will provide an additional 37,000 sq. ft. of floor space.



OPERATOR, AT LEFT, IS WATCHING MACHINE DRAW-IN COTTON WARP FROM A FLAT SHEET. HELPER, AT RIGHT, IS UNLOADING DRAWN-IN WARP FROM AUXILIARY TRUCK

A MACHINE WITH SHARP EYES, QUICK HANDS, AND AN AUTOMATIC "BRAIN"...

If you want to see the complete list of mills now using these machines, and the types of products they weave, write for a copy of the "Users List" shown above. *Ask for Bulletin F 6354.* It is available also in French and German translations.

The operation of drawing-in new warp through drop wires, heddles, and reed is an ever-present problem in all types of weaving. In the old days it was done entirely by hand, and still is in some places — a tedious and tiresome task. The advent of the Barber-Colman Warp Drawing Machines has changed all that, so that you now have a wide range of equipment to suit all needs. Barber-Colman Warp Drawing Machines draw-in the drop wires, the heddles, and the reed *all in one operation.* A needle, operating at 75 strokes a minute or better, picks up each end in sequence and draws it through the proper apertures. Each opening is correctly presented at each stroke of the needle, this selection being accomplished automatically from a metal pattern strip punched in accordance with the designer's draft. Thus the human eyes, hands, and brain have been supplanted by a mechanism that is sharper of vision, quicker of movement, and practically infallible. Results, in mills across the country, and in lands across the sea, show a consistent record of improvements and economies of many kinds. Application is *not* limited to only the larger mills; it is determined actually by the work to be done. *Barber-Colman representatives are qualified by long experience to make a detailed study of your requirements—and to make a proper recommendation if one is justified.* Ask *your* Barber-Colman representative for details.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

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Phone 5-1531

NEWS ABOUT MILLS — Continued

WOOLEN AND WORSTED MILLS

Artloom Carpet Co., Philadelphia, Pa., will build its new plant in Forsyth, Ga. The new building will contain 80,000 sq. ft. Cost will be $500,000. The company is planning to install additional tufting equipment in its Philadelphia mill.

Carleton Woolen Mills, Inc., Rochdale, Mass., has purchased a plant containing 160,000 sq. ft. in Winthrop, Me. Operations are scheduled to begin soon.

Dixiana Mills, Dillon, S. C., has an expansion program under way that includes the construction of a new one-story addition containing 35,000 sq. ft. of floor space and a new boiler house.

Pine Tree Co., Dahlonega, Ga., has begun the construction of a one-story building that will be used for tufted-carpet manufacture.

J. P. Stevens & Co., Inc., North Andover, Mass., has changed the name of its division, M. T. Stevens & Son Co., to the Woolen & Worsted Div. of J. P. Stevens & Co., Inc.

Sweetwater Rug Mills, Sweetwater, Tenn., has acquired a building on Johnston Highway, Saluda, S. C., and will equip it for a new branch mill. Improvements will be made and a new one-story, 80x255 sq. ft. addition will be built.

Waverly Worsted Mills, Inc., Lowell, Mass., will move its plant and offices to Farnumsville, Mass.

SYNTHETICS MILLS

Burlington Industries, Inc., has purchased Mooresville Mills, Mooresville, N. C.

Esther Mill Corp., Shelby, N. C., has begun work on a three-story, 26,000-sq-ft. addition to its mill. Space will be provided for 75 additional looms. The cost will be $150,000.

Oxford Fabrics, Inc., will begin operations around Sept. 1 in a new building to be constructed at Oxford, N. C. Company will do specialty weaving.

Yarncrafters, Inc., Philadelphia, Pa., has started operations. The firm will twist color- and fiber-blends that will include cotton-nylon and wool-nylon. About $10,000 will be spent on equipment. The company occupies 7,500 sq. ft. in a building at Jasper and Huntington Sts.

KNITTING MILLS

Argo Knitting Mills, Schuykill Haven, Pa., has purchased the first improved 30-in. interlock machine built by Scott & Williams, Inc., Laconia, N. H.

Artcraft Mills, Inc., Darby, Pa., plans a $2,000,000 expansion program that will include the installation of over 600 Fidelity 400-needle seamless knitting machines by December, 1956.

Bassett-Walker Knitting Co., Bassett, Va., is adding two three-story additions to its plant. About 19,290 sq. ft. will be added.

Berkshire Knitting Mills, Reading, Pa., has set aside 12,000 sq. ft. in its plant for the installation of seamless-hosiery machines.

Brauer Knitting Co., Ridgefield, N. J., a new company, has started the production of circular knitted fabrics from stretch-nylon yarn. Jerome Brauer is president.

Catalina, Inc., Los Angeles, Calif., will construct a one-story building, 160x240 ft., at Whittier, Calif., to be occupied under lease.

Crown Hosiery Mills, High Point, N. C., has awarded the contract to L. B. Gallimore Construction Co., Greensboro, for a two-story plant addition and office building. The company will spend about $125,000.

Harriet Mills, Inc., Rock Hill, S. C., has been granted a South Carolina charter to manufacture hosiery. C. B. Griffith heads the company.

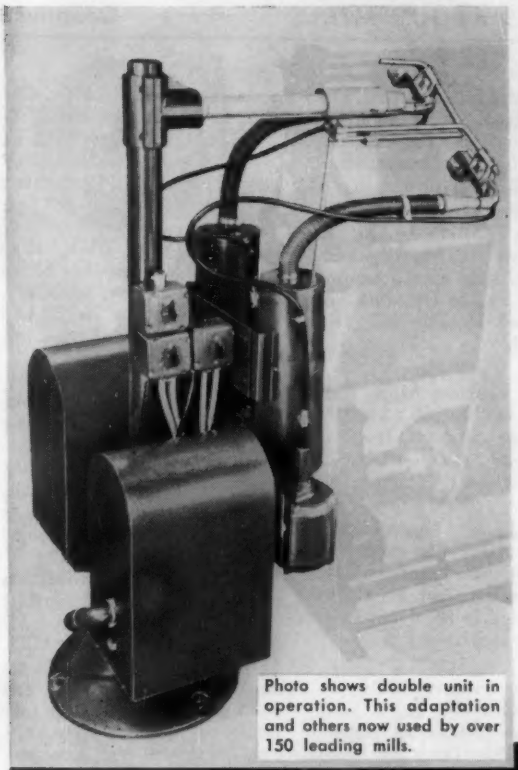

Photo shows double unit in operation. This adaptation and others now used by over 150 leading mills.

CUSTOM INSTALLATION FOR DYEING & FINISHING PLANTS
Small or large quantities vats, tanks, roller hoods, platform trucks, etc., manufactured to your specifications. Information on request.

TRIM SELVAGES FASTER CUT INSPECTION COSTS

with the individual piece goods

TRIM-MASTER

Here is the ultimate in efficient selvage cleaning for weaving, dyeing and finishing mills. The individual piece goods Trim-Master permits selvage trimming, cloth examining, measuring and winding all in one rapid operation.
Cloth flows past Trim-Master head and suction automatically draws threads into trimmer blade cutting thread simultaneously.

- CAN BE PLACED NEXT TO EXAMINING FRAME, PERCH BOARD, TENTER FRAME OR OTHER WINDING DEVICE.
- ADJUSTABLE FOR WIDTH AND TYPE OF CLOTH. CANNOT DAMAGE THE FABRIC.
- USED SUCCESSFULLY ON: Elastic Fabric, Woolens and Worsteds, Fiber Glass, Duck, Twills, Canvas, Upholstery, Tie Silks, Jacquards, Drapery Cloth, Synthetic Fabrics, Blends, Suitings, Coatings, Tire Cord Fabric, Towels and Towelling.

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ASSEMBLY PLATE — Holds internal parts in position when head is removed.
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on this Series 3000 Johnson Joint and the syphon elbow. Remember Johnson Joints have written an unmatched service record . . . are first choice among mill men and machinery makers alike . . . and can fit all operating needs.

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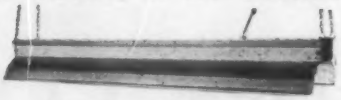
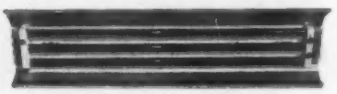
Check potential dye streaks at the SOURCE

with the new IDENTA-LITE*



Special high-intensity reflector finish



3—48" ultra-violet lamps

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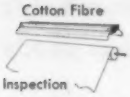
Cat-eye Cotton
California Cotton
Fibre Contamination
Oil Spots

Cotton Fibre



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Hosiery Inspection

Excellent for dyestuff and chemical identification and adulteration

The powerful ultra-violet rays of the Identa-Lite instantly show up almost all of the potential causes of dye streaks . . . from the bale to cloth inspection. Various defects produce characteristic reactions under this light, thus making it easy to correct each at its source.

For Instance: Each oil used in opening, carding, spinning, weaving, and finishing can be typed and matched with oil spots on finished goods, thus making it possible to determine exactly where the spots originated.

Complete with base, tubes, reflector, starters, transformers, and hanging chains—ready for use on 110V AC line. Only $75.00 F.O.B., Charlotte.

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NEWS ABOUT MILLS — Continued

Jantzen, Inc., Portland, Ore., has invested $1,000,000 in new equipment and the development of new techniques in its Portland, Ore., plant.

Julius Kayser & Co. has transferred its hosiery-dyeing and -finishing operations from Bangor, Pa., to Diamond Full-Fashioned Hosiery Mill, High Point, N. C.

Ladd Knitting Mills, Reading, Pa., will launch a $500,000 expansion program that will provide an additional 18,000 sq. ft.

Manchester Hosiery Mill, Douglas, Ga., has spent over $1,000,000 for expansion in its new seamless plant. Production is expected to be 300,000 doz. seamless nylons per year.

Margo Hosiery Mills Co., Thomasville, N. C., is building a new 7,500-sq.-ft. plant at Davidson & Jacob Sts. Cost will be $50,000.

Maryon Hosiery Mill, Carrollton, Ga., is expanding its productive facilities. New 54-gauge strippers and 24-gauge reverse-plate wrap machines have been ordered.

Slane Hosiery Mills, High Point, N. C., is installing $250,000 worth of new machinery, including Crawford argyle and Hemphill SCOP overplaid machines.

Tenn-Rock Hosiery Co., McMinnville, Tenn., plans to erect a new 30x180-sq.-ft. brick building that will cost $60,000. The new building will provide 10,000 sq. ft. of floor space with 2,500 sq. ft. for additional offices. Tenn-Rock is also locating its sales and production control offices in McMinnville.

Williamstown Knitting Mills, Williamstown, N. J., has been organized by Abraham and Morris Kopeika to produce full-fashioned sweaters. New knitting equipment has been purchased.

DYEING AND FINISHING PLANTS

Athol Mfg. Co., Athol, Mass., has begun preliminary operations at its new branch mill in Butner, N. C.

Berks Textiles, Inc., West Reading, Pa., will continue to do seaming, looping, finishing, and other related operations with the exception of dyeing. The company has discontinued its knitting operations.

Delta Finishing Co., a division of J. P. Stevens & Co., Inc., Wallace, S. C., is planning to build a 55,000-sq.-ft. addition to its mill. The contract has been let to Daniel Construction Co., Greenville, S. C.

Guilford Finishing Co., Guilford, Conn., has awarded the contract to Branford Tile & Building Co., Guilford, for a one-story mill addition that will cost about $150,000. Leo F. Caproni, New Haven, Conn., is the architect and engineer.

Kendall Co., Walpole, Mass., plans to build a finishing plant at Bethune, S. C., that will employ about 250 persons. The new plant will be one story, with 300,000 sq. ft. for manufacturing and storage space. Lockwood Greene Engineers, Inc., is the engineer in charge. Daniel Construction Co., Greenville, S. C., is the contractor.

Munsingwear, Inc., plans to open a new finishing plant in Vinita, Okla. The new mill will contain 37,000 sq. ft. and will cost about $250,000.

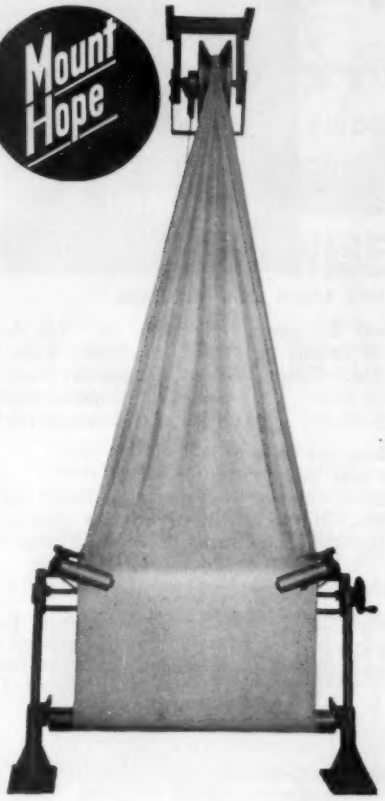
Newburgh Bleachery, Newburgh, N. Y., has installed a curing oven. The company will apply crease-resistant and other resin finishes.

Preston Industries, Preston, Ont., is now producing 6,000 yds. of treated cotton duck in an eight-hour day in its new plant.

Rock Hill Printing & Finishing Co., Rock Hill, S. C., will add seven printing machines and complementary equipment as part of its modernization program.

Spinners Processing Co., Spindale, N. C., is nearing the completion of its $400,000 modernization program. In addition to the renovation of the entire building, a warp-mercerizing range has been modernized, equipment renovated, and a two-story building containing 6,000 sq. ft. constructed to be used for a new laboratory, dye-mixing room, and dye storage.

Mount Hope



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Open your *heaviest* or
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Gentle — Positive — Quiet

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MACHINERY COMPANY
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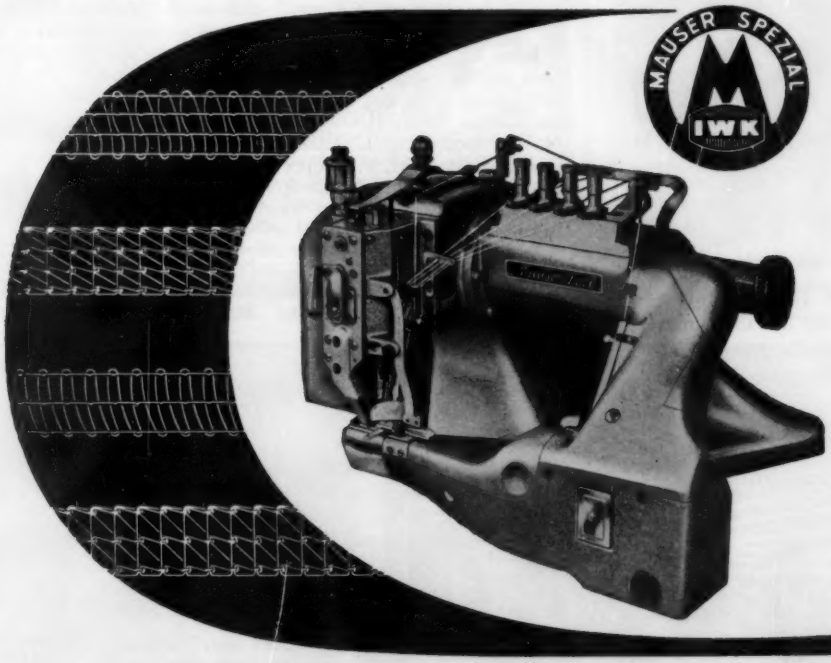
MAUSER SPECIAL Feed-off-the-arm Flat-seam Machine MAUSER LOCK



with trimmer and differential feed dog producing an extremely elastic 4-needle-covering seam with one lay in thread for the trimming, sewing together and hemming of all kinds of hosiery as well as elastic material.

- Number of needles 3 and 4
- Breadth of seam 7/32" and 9/32"
- Number of stitches per minute up to 2800 and 3400

The automatic lubrication system and the oil circulation controls greatly facilitate the service and maintenance of the machine.

Illustrated leaflets will be supplied on request.

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3 GURLEY TEXTILE TESTS: STANDARDS FOR THE INDUSTRY

1. GURLEY AIR PERMEABILITY TEST FOR STANDARD TEXTILES

New Model *Gurley Permeometer* takes only 15 seconds for testing air permeability. Use it for filter fabrics and accurately measuring windproofness, coating penetration, filler-retention, water-resistance of fabrics permitting passage of from 1 to 400 cu. ft. of air/min./sq. ft. at pressure drop of 0.5".

Write for Bulletin 1400.

2. GURLEY AIR RESISTANCE TEST OF TIGHTLY WOVEN FABRICS

Easy-to-use, accurate *Gurley Densometer* tests for porosity, air resistance and air permeability of windproof cloth, gabardine, canvas, poplin and many other fabrics below Permeometer capacity. Preferred equipment in textile labs everywhere.

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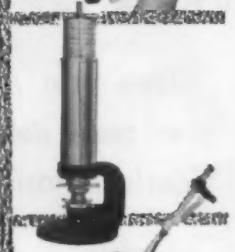

3. GURLEY STIFFNESS AND PLIABILITY TESTS

Motor-driven *Gurley Stiffness Tester* quickly expresses stiffness and "handle" of fabric in specific figures. Precision-balanced pointer pivots in jewel bearings, indicates stiffness factor of test piece on sine scale. Range includes practically all textiles.

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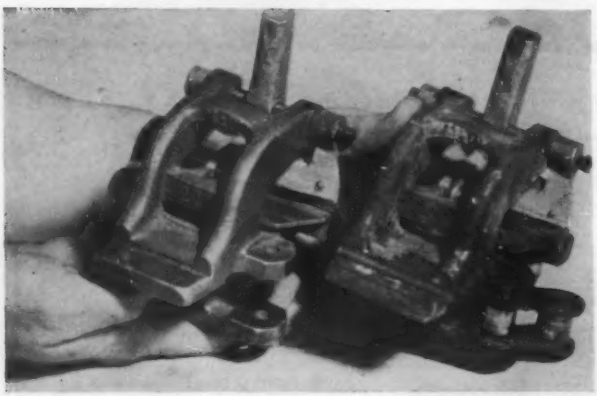
515 Fulton St., Troy, N. Y.

GURLEY SINCE 1845



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Try it on your tenter chains. Just ask your local Oakite Technical Service Representative, or write, Oakite Products, Inc., 26C Rector St., New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
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Technical Service Representatives in Principal Cities of U. S. & Canada

Textile World NEWS about MEN

Gerald Benjamin has been named overseer of carding at Sawyer, Regan Co., Dalton, Mass.

William H. Burn has been named president and general manager of Crescent Hosiery Mills, Niota, Tenn. He succeeds his father, the late James L. Burn, II.

Joseph Z. Bussiere has been named plant manager of Lynn Textile Mills, Inc., Holyoke, Mass.

Vester Butler has been appointed superintendent of the new plant of William Carter Co. now under construction at Thomaston, Ga.

David Cohen has been elected a vice president of M. Lowenstein & Sons, New York, N. Y.

John D. Cooper, Jr., has been elected president of Harriet Cotton Mills and Henderson Cotton Mills, Henderson, N. C., succeeding **J. Allison Cooper,** retired. **M. Y. Cooper** has been elected vice president in addition to his duties as treasurer.

Ted Cowan has been named president of Hollywood Knitting Mills, Inc., Los Angeles, Calif., succeeding **John Aster. Kay Karahadian** has been named to the newly created position of chairman of the board of directors.

Preston H. David has been named assistant general manager of Riegel Textile Corp., Trion Div., Trion, Ga.

J. L. Fesperman, Jr., has been appointed general superintendent of all manufacturing operations for Cabin Crafts, Inc., Dalton, Ga.

G. T. Gardner has been named executive vice president of Riegel Textile Corp., New York, N. Y.

John D. Green has been named a vice president and director of P. H. Hanes Knitting Co., Winston-Salem, N. C. **Edwin H. Maddrey** has been named assistant treasurer in addition to his duties as assistant secretary.

Harvey B. Greene has been named secretary, treasurer, and a director of National Automotive Fibres, Inc., Detroit, Mich.

Joseph H. Halford, Jr., has been elected a vice president of Brunswick Worsted Mills, Inc., Moosup, Conn. He will con-

H. C. CLARK (left) has been named superintendent of the gray mill of Dominion Textile Co. Ltd., Montreal, Que. D. W. JOHNSTON (center) has been named plant manager of the Drummondville Div. of the company at Drummondville, Que. R. W. KOLB (right) has been appointed assistant plant manager at Drummondville.

ELECTRIC STOP MOTIONS

"WESCO" TOPS THE WORLD'S BEST KNITTING MACHINES

FOR UNDERWEAR OUTERWEAR HOSIERY

PRODUCTION WISE - IT'S WESCO

USED ON ALL THESE KNITTING MACHINES:

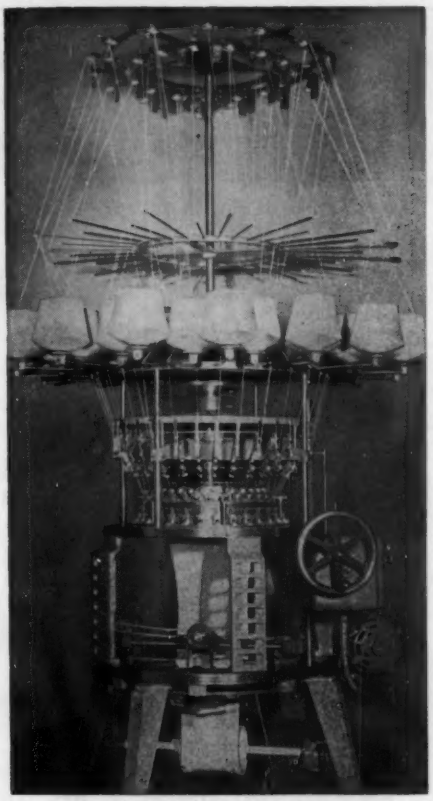
Bentley	Edmos	Mellor, Bromley	Stibbe
Blackburn	Fidelity	Ordnance Gauge	Supreme
Brinton	Jacquard	Precision Knitters	Tompkins Bros.
Cooper	Lamb	Scott & Williams	Wildman
Crane	Leighton	Stafford & Holt	Wildt

Wesco engineers are never satisfied. They keep pace with the developments of all new outerwear, underwear and hosiery knitting machines. The end result is that Wesco is standard equipment in the finest mills throughout the world. Wesco Stop Motions guard machines against press-offs, prevent needle breakage, improve the work and increase profits. You can't go wrong when you specify *Wesco Stop Motions.*

THE ULTIMATE IN STOP-MOTION PERFORMANCE

STOP-MOTION DEVICES CORPORATION
1471-77 Fulton St. Brooklyn 16, N.Y.

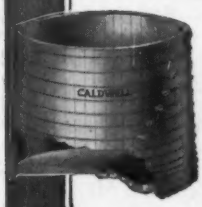
Another of a Series of Knitting Machine builders. Others to follow



STANDARD EQUIPMENT
Edmos: Type EEM 20"—30 feeds

CALDWELL TANKS—

First Choice of the Textile Industry!



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If you're thinking of installing or replacing a tank, let our 60 years' experience in building high-grade tanks serve you. *Send for our catalog, today!*

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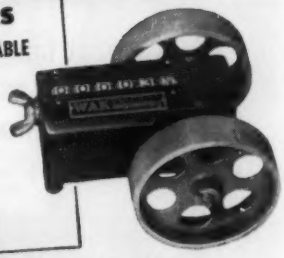
USE WAK COUNTERS
RUGGED ACCURATE DEPENDABLE

We build single, double and triple pick counters; yardage, rotary and special counters—non-reset and reset.



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SPINNING MACHINERY FROM INGOLSTADT THROUGHOUT THE WORLD!

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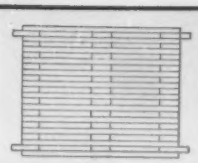
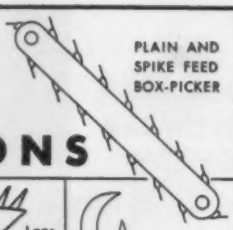
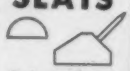
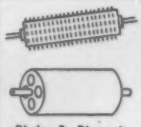

GARNETT—FLOOR CONVEYOR—ALL SHAPES—SIZES—HARDWOOD SLAT


PLAIN AND SPIKE FEED BOX-PICKER

APRONS

SLATS


Plain & Pinned All Sizes & Shapes Hard & Soft Woods


Plain & Pinned Rolls & Cylinder

Tenter Plates

Picker & Shredder Teeth

ROBERT A. MAIN & SONS, INC.
268 PASCACK RD. MANUFACTURERS PARAMUS, N. J.

CREATED FOR THE TEXTILE INDUSTRY

the DUROMETER
FOR TESTING WINDING DENSITY

Created to solve the problem of maintaining uniform density for unwinding in later processes, the DUROMETER saves time and money. Tests density of windings on spools, cones, bobbins, cops and package dyeing tubes.

Write today for bulletin R-8

Shore INSTRUMENT & MFG. COMPANY, INC.
90-35 VAN WYCK EXPRESSWAY, JAMAICA 35, N. Y.

INDUSTRIAL ENGINEERS

PAYROLL CONTROLS
WORK LOAD STUDIES
COST REDUCTION REPORTS
COST SYSTEMS SPECIAL REPORTS

SPECIALIZING IN TEXTILES FOR OVER ONE-THIRD OF A CENTURY

RALPH E. LOPER CO.
GREENVILLE, S. C. FALL RIVER, MASS.

When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

Director of Circulation
TEXTILE WORLD,
330 West 42nd St., New York 18, N. Y.

Please change the address of my Textile World subscription.

Name .....
Old Address .....
New Address .....
New Company Connection .....
New Title or Position .....

NEWS.ABOUT.MEN Continued

PERCY R. MEEKER has been named manager of finishing sales and a vice president of Bishopville Finishing Co., Bishopville, S. C.

WILLIAM W. MURPHY has been named assistant foreman and chief chemist in the Bleach and Dye Dept. of Roanoke Mills, Inc., Roanoke, Va.

tinue as assistant treasurer in addition to his new duties.

C. E. Hicks has been named vice president and general manager of Nebel Knitting Co., Charlotte, N. C. **W. R. Candle** has been named vice president in charge of sales.

B. B. Howard has been named a vice president of Dan River Mills, Danville, Va.

Robert O. Huffman has been named chairman of the board of Drexel Knitting Mills Co., Drexel, N. C. **Frank L. Bowers** has been elected president, and **Robert D. Walker** has been elected executive vice president.

Walter Knoepfel has been appointed plant manager of Bishopville Finishing Co., Bishopville, S. C.

Rolliston W. Linscott, Jr., has been named president of Lincoln Mills of Alabama, Huntsville, Ala. He succeeds **Charles D. McDuffie.**

Jack Market has been promoted to overseer of twisting at the Unity Plant of Callaway Mills, LaGrange, Ga. **Clyde Williamson** has been promoted to overseer of carding.

Robert N. McIver has been named plant operating manager at Fulton Bag & Cotton Mills, Inc., Atlanta, Ga.

Ernest L. McLellan has been named president of Alden Mills, New Orleans, La., succeeding his father, **Charles McLellan.**

William E. J. McMann has resigned as superintendent of dyeing operations, and H. C. Clark has resigned as superintendent of the Riverside Div. of Dan River Mills, Danville, Va.

William V. Oothout has resigned as general manager of Wamsutta Mills, New Bedford, Mass. **Edward S. Rudnick** has resigned as director of research.

W. A. J. Peacock has been named a vice president of Borden Mfg. Co., Goldsboro, N. C. **E. L. Caviness** has been named secretary. Both men have assumed duties previously performed by **C. M. Black,** resigned.

Thomas E. Peterson has been named technical superintendent of Lockwood-Dutchess, Inc., Waterville, Me.

Mosses Richter has been elected a director of Dan River Mills, Inc., Danville, Va.

William Schmottlack has been named superintendent of dyeing at Great Falls Bleachery & Dye Works, Inc., Somersworth, N. H.

E. W. Seigler has been named vice president of Erwin Mills, Inc., Durham, N. C. He assumes the manufacturing responsibilities of **Carl R. Harris,** who will be vice president in charge of personnel and industrial relations, succeeding **Frank T. de Vyver,** who will retire June 1. **Chauncey W. Lever** and **Sidney F. Marsh** will assist Mr. Harris. **Marchant C. Cottingham** has been named general manager.

JOHN J. SMITH has been elected to the board of directors of Chicopee Mfg. Corp. New Brunswick, N. J.

A. M. Sonnabend has been elected president of Botany Mills, Passaic, N. J., succeeding George Shaddock, resigned.

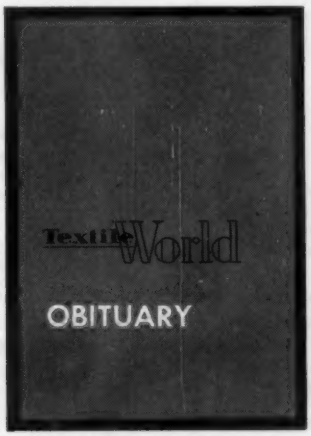
J. Haines Spencer has been named manager of Arnold Print Works, a division of Aspinook Corp., Adams, Mass.

Earle R. Stall, Jr., has been named assistant to W. W. Rogers, plant manager of the American Spinning Plant of Cone Mills Corp., Greenville, S. C.

Roy M. Stephens has been promoted to general superintendent at Dan River Mills, Inc., Danville, Va. He succeeds L. K. Fitzgerald, who resigned.

Karl Steppenback has been named superintendent of operations at Woonsocket Spinning Co., Woonsocket, R. I.

Albert L. Sylvester has been elected to the board of Robbins Mills, Inc., New York, N. Y.



William T. Coleman, 54, overseer at Gastonia Combed Yarn Corp., Gastonia, N. C.

Alfred Deaonley, 85, overseer of spinning at Agawam Woolen Co., Agawam, Mass.

Joseph A. Doster, 53, owner of Doster Hosiery Mill, Hollywood, Fla.

Henry T. G. Dyson, 96, founder and president of Hudson Worsted Co., Hudson, Mass.

Joseph D. Hobson, 54, treasurer and general manager of Hemphill Co., Pawtucket, R. I.

Charles E. Lyons, 59, former president of Warrenton Woolen Co., Torrington, Conn.

James McDowell, 65, vice president in charge of Southern operations for Hemphill Co., High Point, N. C.

Charles Rosenstein, 58, president of Rosenstein Bros., Paterson, N. J.

Hubert A. Spangler, retired partner in Powell Knitting Co., Spartanburg, S. C.

Frank R. Storm, 57, president of Mid-Valley Textile Corp., Pecksville, Pa.

John R. Varey, a director of Slingsby Mfg. Co. Ltd., Brantford, Ont.

W. Claude Withers, 76, retired superintendent of Groves Thread Co., Gastonia, N. C.

YOU CAN GET 42 STOCK SIZES 3/16" to 3"

HALLOWELL

SOLID STEEL COLLARS from your industrial distributor

All of these precision-machined solid steel collars are size-marked for quick identification, and fitted with the famous self-locking UNBRAKO Socket Set Screw for positive positioning on the shaft. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 35, Pa.

HALLOWELL POWER TRANSMISSION DIVISION SPS JENKINTOWN PENNSYLVANIA

Control MAXIMUM PRODUCTION with G.S. HAND TACHOMETERS and SPEED INDICATORS

1% Accuracy for any range from 30 to 100 000 RPM or surface speed. Antimagnetic durable mechanism; Efficient repair service at moderate charges.

IDEAL FOR MOTORS - SHAFTS - SPINDLES - LOOMS - TURBINES - FOR TEXTILE AND POWER PLANTS

WRITE FOR ILLUSTRATED FOLDER

GEORGE SCHERR CO., INC.

200-F Lafayette Street • New York 12, N. Y.

The Kuljian Corporation

RAYON PLANTS & TEXTILE MILLS

• DESIGN
• CONSTRUCTION
• MANAGEMENT

1200 N. BROAD ST., PHILA. 21, PA.

MEXICO CITY • CARACAS • MADRID • ROME • ATHENS • TOKYO • CALCUTTA

For more information, write direct or use Reader-Service post card. 251

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

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$1.20 cents per line, minimum—3 lines. To figure advanced payment count 5 average words as a line.

POSITION WANTED undisplayed rate is one-half of above rate, payable in advance.

BOX NUMBERS care of publication count as 1 line additional in undisplayed ads.

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DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals). EQUIPMENT WANTED OR FOR SALE Advertisements acceptable only in Displayed Style. AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page.

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The advertising rate is $12.65 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

EMPLOYMENT ADVERTISING:

New Employment Opportunities Section for Displayed ads starting July issue. For further details see announcement ad below.

SEND NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y. for June issue closing May 17th

---

SENIOR RESEARCH POSITIONS

at Celanese

ENGINEER

Degree in Physics, Mechanical or Textile Engineering. To develop basic understanding of fiber usage from an engineering point of view, including studies on conversion of fibers into yarns, yarns and continuous filaments into fabrics, and fabrics into end use products.

CHEMIST

PhD. or equivalent in Physical Chemistry, 5 to 8 years' experience, some of which should have been in fiber research. To assist in planning and coordinating problems in basic fiber research covering relationship of molecular and micro structure to mechanical, thermal and other physical properties.

CHEMIST or ChE

BS or advanced degree, with several years experience, preferably in textile research. For research and development in synthetic fiber spinning, development of processes for production of new fibers and improving existing fibers.

These and other similar positions are open at Celanese's Research Laboratories in Summit, New Jersey. The labs are fully equipped with modern facilities, contributing to a satisfying working environment. The diversity of Celanese's activities forms the basis for a permanent, worthwhile association.

Applications are invited from qualified men.
Please address Mr. J. A. Berg,
All replies in confidence.

CELANESE CORPORATION OF AMERICA

Morris Court — Summit, New Jersey

Position With Unusual Opportunity

Young man not over 35 with knowledge of Textiles and some mechanical inclination for position as installation and service technician with textile finishing machinery company. Position has permanency, offers constant challenge with considerable travel. Replies held confidential.

P-6135, Textile World
330 W. 42 St., New York 36, N. Y.

POSITIONS OPEN

We can place MANAGERS, supts., asst. supts. and designers for narrow fabrics, rayon fabrics, pile fabrics, woolen and wstd. cloth mfg., hosiery mills, synthetic fibre weaving and throwing, cot. batting, drapery and upholstery, woolen yarn and rayon yarn converting mills, also knit goods bleach., finish. and processing.

OVERSEERS for Whitin Schreiter winders; knit goods dyeing; win. spin.; garnetting; jig dye. rayon fabrics; win. and wstd. finish.; sewing knit goods; package dyeing; pile fabric finish.; wstd. spin., twist. and reeling. SECOND HANDS win. card. and win. finish.

MASTER MECHANICS and plant engineers; chief electrician; chemists, chem. engineers and laboratory men for mills, also for demonstrating and selling; industrial engineers.

ACCOUNTANT; New York City salesmen for grey goods and win. piece goods; tex. school graduates (several); machine printer; mechanic Leighton transfer and Brinton mach.; expert plush shear tender; win. card fixers; sewing mach. fixers; loom fixers; converter-technician for corset and brassiere fabrics.

If you are available for a good paying position in the textile field, it will pay you to have your application in our files. We are receiving more inquiries and placing more men than for several months. Negotiations are confidential. No fee to be paid unless you accept employment through our Service.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Boston 8, Mass.
Phone: LIberty 2-6547
Over 55 Years in Business

SALES ENGINEERS

JOIN a veteran leader in today's most dynamic industry.

BRUSH ELECTRONICS COMPANY

pioneer (since 1921) in piezotronics and electronic instrumentation, has immediate opportunity for

ADDITIONAL SALES ENGINEERS

To share responsibility for the promotion of a full line of textile instrumentation throughout the eastern U.S. Applicants must have solid background in textile instrument sales plus extensive contacts with top textile management. Textile engineering graduates preferred.

SALARIES COMMENSURATE WITH ABILITY AND EXPERIENCE: PENSION PLAN, LIFE INSURANCE, HOSPITAL AND SURGICAL PROTECTION, OTHER REALISTIC BENEFITS: MOVING EXPENSES PAID.

For personal interview write to:
ROBERT PARKER
BRUSH ELECTRONICS COMPANY
(Division of Clevite Corporation)
3405 Perkins Ave. Cleveland 14, Ohio

Attention . . .

EMPLOYMENT ADVERTISERS

Effective with the July issue, a new section will start in TEXTILE WORLD. We will head this section: EMPLOYMENT OPPORTUNITIES. All Displayed Employment Opportunity advertising will be placed in this new section, with the exception of those advertisers who contract for run-of-book position. Advertisements in the EMPLOYMENT OPPORTUNITIES section will be billed at the new open rate of $14.85 per inch. Contract rates furnished on request. Advertisements are subject to Agency Commission.

For full information write:

TEXTILE WORLD
Classified Advertising
330 West 42nd St.,
New York 36, N. Y.

IPA

LIQUIDATION SALE

ALL MODERN MACHINERY and EQUIPMENT of

R. W. BATES PIECE DYE WORKS, GARNERSVILLE NEW YORK

Our representative, George H. Hansen, on premises during regular business hours and by appointment

PARTIAL LIST—We welcome your inspection

29—DYE, BECKS, ALL STAINLESS STEEL, *ENCLOSED* AND OPEN, 2', 3', 4', 6', 8', 10', 12', 16' WIDTHS, ALL 40" DEEP, 86" FRONT TO BACK. MOTOR DRIVES. 1947-1954.

4—70" TENSIONLESS DYE JIGGS, *ENCLOSED*, ALL STAINLESS STEEL, MOTORS, 1951 MODEL.

4—70" TENSIONLESS DYE JIGGS, ALL STAINLESS STEEL, MOTORS, 1951 MODEL.

2—60" TENSIONLESS DYE JIGGS, ALL STAINLESS STEEL, MOTORS, 1951.

3—70" SEMI-DECATORS, DOUBLE VACUUM PUMPS, BLANKETS, MOTORS, 1950 MODEL.

1—60" SEMI-DECATOR, PUMP, BLANKET, MOTOR DRIVE, 1950 MODEL.

2—66" HENNIKENS BOIL OFFS, STAINLESS STEEL CHAINS, 1950 MODEL.

1—50" HENNIKENS BOIL OFF, STAINLESS STEEL CHAIN, 1947 MODEL.

1—66" CARBOMATIC SINGER, DOUBLE BURNER, MOTOR DRIVE, 1950 MODEL.

1—64" BUTTON BREAKER, BAKELITE ROLLS, MOTOR DRIVE.

1—70" CALENDER, 3 ROLL HYDRAULIC, 14 TON PRESS, 1953 MODEL.

1—50" CALENDER, 3 ROLL HYDRAULIC, 14 TON PRESS, 1951 MODEL.

1—10 FAN LOOP DRYER, 104" INSUL POLES, ALUMINUM HOUSING, AIR FAN HEATERS, GAS BOOSTER, 1948 MODEL.

1—FIVE FAN LOOP DRYER, 120" INSUL POLES, ALL GAS FIRED, ALUMINUM HOUSING, 1953 MODEL.

1—PALMER TENTER-PAD UNIT, 66" WIDTH, 60' TENTER FRAME, FULLY SYNCHRONIZED, 1948.

1—100' FINISHING FRAME, GAS FIRED HOUSING, 80' LONG, 100'X66" TENTER FRAME, 66" HYD. PADDER, M.G. SET, 1952 MODEL.

3—50'X66" TENTER FRAMES, ENCLOSED GEARS, STAINLESS STEEL TOP OPENING CLIPS, MOTORS AND REEVES DRIVES.

2—66" MICROSET PADDERS, 2 RUBBER ROLLS, S.S. DIP PANS, MOTORS, 1950.

2—66" PNEUMATIC PADDERS, 2 RUBBER ROLLS, S.S. DIP PANS, MOTORS, 1950.

5—EXAMINING MACHINES, 60"X72" WIDE, MOTORS.

3—70" BEAMERS, HEAVY DUTY, MOTORS, 1954 MODEL.

5—60" BEAMERS, MOTORS, 1948 MODEL.

10—HIGH SPEED TUBERS, 60"-70" WIDTHS, MOTORS, 1950 MODEL.

4—VACUUM PUMPS AND MOTORS, L-4, L-5, L-6.

1—STAINLESS STEEL WASHER, OPEN WIDTH 78", 116" LONG, 47" DEEP, 5 COMPARTMENTS, MOTOR, 1952 MODEL.

1—66" SCUTCHER, BALL BEARING, 1952 MODEL.

1—COOK DETWISTER.

1—L-6 VACUUM PUMP AND ADJUSTABLE SLOT.

1—66" EXTRACTOR, STAINLESS STEEL BASKET, 1950 MODEL.

1—48" EXTRACTOR, MONEL BASKET.

COMPLETE WATER FILTERING AND SOFTENING UNIT.

MACHINE SHOP.

BILLING MACHINES, DESKS, ETC.

ALL SUPPLIES: TRUCKS, STORAGE BINS, SCALES, TANKS, LIFTS, ETC.

For complete details, WRITE—WIRE—PHONE

Send for descriptive circular

EXCLUSIVE LIQUIDATORS

SOUTHERN OFFICE

IPA SOUTHERN, INC.

610 S. Carolina Nat. Bk. Bldg.
Greenville, South Carolina
Tel: 2-3561

IPA

NORTHERN OFFICE

INDUSTRIAL PRODUCTS OF AMERICA

140 Market St., Paterson, N. J.
Tel: Sherwood 2-6614 *Cables:* Texindus

FOR SALE – SPECIALS

WEAVING—WARPING
4—C&K W3 LOOMS, 72".
12—C&K auto. LOOMS, 72".
12—C&K 4x4 LOOMS, 62".
2—Sipp Eastwood WARPERS, 100".

TRICOT FNF UNIT
1—Cascade WARPER.
2—21" BEAMS or 42".
1—CONE CREEL 1196 ends.
4—LOOMS 84" wide, 28 ga.

FLAX—TOW
Complete Line System 12s to 30s lea wet and gill.
Hacking—Spreader—Doubling—Drawing
—Spinning
Tow Systems 14s to 20s lea wet.
Carding—Drawing—Roving—Spinning.

TWISTERS
3—P.S. Units, 120 spdls. ea., 4½" ring, 6" ga.
53—Whitin Units, 160 spdls. ea., 3½" ring, 4½" ga.
3—F&J Fancy Units, 160 spdls. ea., 3" ring, 4" ga.

KNIT GOODS—REBUILT
2—D&F NAPPERS, 20 roll, 80".
2—Gessner NAPPERS, 18 roll, 72".
1—PIN TENTER FRAME, 25' x 78".
1—TENTER FRAME with housing, 90' x 72".

REBUILT—WAREHOUSE STOCK
1—P&S Staple CARD 60".
2—P&W Cloth DOUBLERS, 66".
1—Butterworth S.S. PACKAGE DYEING MACHINE, 256 pkgs.
1—P&W SEMI-DECATUR, 72" x 60" dia.
1—Gessner Vacuum EXTRACTOR 72".
1—Davidson 3-blade Hi-Speed SHEAR 66".
1—C&M SINGER, 3 burners, 84".
1—Van Vl. CLIP TENTER 20' x 57".
1—Whitin Schweiter WINDER, Model MS, 21 spdls.

McDOWELL ASSOCIATES INC.

General Offices: Phone: Murray Hill 2-7417
41-E. 42 Street New York City 17, N. Y.

Warehouse: Phone: Hudson 8-3211
No. 1 N. Front, Dock & Water Sts., Hudson, N. Y.

Southern Sales Representative

The man we seek must be a true southern gentleman experienced in selling chemical products to the southern textile industry. We prefer a man who has a textile chemical background, a proven sales record, and a familiarity with application of fiber lubricants to wool and synthetic fibers.

If you are selected, you will cover the southern states as sales representative for a well-established New England manufacturer of first-quality textile fiber lubricants, finishes, etc.

This is an exceptional opportunity for an exceptional man. Write full particulars and include references in first letter. Our employees know of this ad.

RW-6225, Textile World
330 West 42nd St., New York 36, N. Y.

TECHNICAL PERSONNEL REQUIRED

DEVELOPMENT ENGINEER, 26 to 33, graduate engineer with mechanical training and a few years general experience for work in design, fabrication, requisition, operation and maintenance of laboratory and pilot plant equipment connected with development of new or improved processes and products involving the use of wood fiber and textile fiber as basic raw material.

PRODUCT DEVELOPMENT MAN, college graduate, technical, as an addition to the Development staff. Work relating to improvement of existing and development of new fiber products; involves travel, consumer contacts, and liaison with Sales. Creativeness and initative are desirable traits and experience of 3 to 4 years is preferred.

Upper midwest location. Send complete information first letter, including references and salary requirement.

P-6143, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

FABRIC DEVELOPMENT SPECIALIST

Our client, a long established AAA1 progressive and expanding woolen mill near Boston making comprehensive line for coating and dress trade, plans creation of a new research and development division. Interested in top-notch aggressive man to develop new synthetic and woolen cloths incorporating newest ideas developed in the textile field. Knowledge of knitting helpful but not essential. This is an excellent opportunity to be associated with a leading mill offering a sound future. Attractive salary commensurate with ability for the right man.

RICHARD SALES
John Hancock Building
Boston, Massachusetts

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)
LOS ANGELES: 1111 Wilshire Blvd. (17)

POSITIONS VACANT

Wanted Manager for large cotton mill middle east. Spinning weaving finishing printing. Only those with following minimum qualifications need apply: at least 3 years as manager and total 10 years in responsible positions large cotton mill; diploma/degree in textile technology, engineering, science economics or accounting. Age 35 to 48; renewable contract; excellent pay conditions for right man. Please give details age, experience, salaries received, copies testimonials, certificates and minimum terms acceptable etc. In confidence to P-6183, Textile World.

Dyer—Finisher experienced on resin finishes, on nylon, net & tulle. N Y City dye house. P-6289, Textile World.

Textile Chemist Wanted: For a Connecticut Lace Manufacturer. Experienced in setting up laboratory standardization and testing of all yarns and synthetics. Experienced in dyeing and resin finishing laces and elastic goods helpful. Excellent opportunity for young man with ability. P-6137, Textile World.

WE NEED A
MECHANICAL OR TEXTILE ENGINEER
With a broad understanding of the manufacture of textiles. Interested in developing new plastic products for use in textile manufacture from the market development point of view. Please submit detailed resume.
UNITED STATES RUBBER COMPANY
Chicago Die Mold Division
4001 W. Wrightwood Ave. Chicago 39, Ill.

SELLING OPPORTUNITY OFFERED

Selling Opportunity offered for air conditioning chemical specialty, U. S. patent pending to sell to New England Textile Mills. Should have other non-conflicting lines. Reply to Industrial Products Company, 185 Harris St. N.E. Atlanta, Ga.

POSITIONS WANTED

Wanted: Weaving overseer experienced on C&K draper looms located in South America wants to make change. Available after sixty days. Will consider employment in either United States or foreign country. PW- 5724, Textile World.

Pilot, Executive, Airline Transport Rated, DC-3, DC-4, Lockheed PV, Lodestar, PBY, Beech 18, 9000 hrs., 14 yrs. exp. airline, MATS: sales 7 yrs. exp., Box 1222, Decatur, Ga.

Plant Manager—more than 15 years' experience all phases of textile production, including quality control, methods and coordination of engineering, research and manufacturing. Cost-conscious, excellent administrator. College graduate, with textile technical training. Age 39. Seeks real challenge. PW-6071, Textile World.

Designer—Individual styling in handmade knitware. Can manage store or small factory. Excellent instructress also. Prefer N. Y. area. PW-6295, Textile World.

SELLING OPPORTUNITY WANTED

Manufacturers Representative with following among synthetic and natural fibre throwing, spinning, weaving and knitting mills and dye houses in Pennsylvania, New Jersey and Virginia desires additional lines. Write RA-6059, Textile World.

CONTRACT WORK WANTED

Sulfonator of oils with surplus capacity is prepared to make interesting price concessions to large consumers. CWW-6052, Textile World.

POSITION WANTED

TEXTILE TECHNOLOGIST, B.S. with Honors, University of Manchester. Two years' practical experience, weaving and spinning, in Europe and Great Britain. Excellent references. Any locality acceptable. Reply
PW-5804, Textile World
330 W. 42 St., New York 36, N. Y.

PROFESSIONAL SERVICES

PATENTS

Information concerning procedure furnished upon request, without obligation.

B. P. FISHBURNE
REGISTERED PATENT ATTORNEY
702A McLachlen Bldg. Washington 1, D. C.

When Answering
BOX NUMBERS . . .
to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

LATE LARGE PACKAGE SYNTHETIC TWISTERS

9 ATWOOD UNIRAIL 1952 D. D. TWISTERS
1 lb. Pkge. 184 spindles per machine 5½" guage. Like-new condition. Complete with Nylon-type spindle bobbins.

8 ATWOOD MOD. 110 1948 D. D. TWISTERS
1 lb. Pkge. 204 spindles per machine 6" gauge. Like-new condition. Complete with Nylon-type spindle bobbins.

2 SPINDLELESS REDRAWS
60 spindles each 1 lb. Pkge. 1 Sipp-Eastwood, 1 Atwood.

6 FLETCHER DUPLEX 90 SPINDLE DOUBLER TWISTERS
5" spacing. 3" Eadie rings. Excellent condition. Double 2" feed rolls.

3 ATWOOD DOUBLER TWISTERS 100 SPINDLES EA.
5" spacing. 3¼" Eadie rings. Double 2" feed rolls.

1—1950 HERMAS Shearing Machine
with rolling and sewing attachments

2—H&W YARN CONDITIONING BOXES
1—1950, 1—1948

1—PARKS & WOOLSON SHEARING MACHINE

A Variety of C&K AND DRAPER BROAD GOODS AUTOMATIC LOOMS
S-6's—S-5's with S-6 clutches—Draper XD's—Slashers—Warpers—Automatic Quilling—Quills—Harness Frames—Drop Wires—Etc. Please send us your inquiries.

MODERN NARROW FABRIC PLANT

14 FLETCHER 1940 HIGH SPEED LOOMS

8—13'6" LOOMS 2 SECTION
Dual roller bearing cam motions. D.D. circular battens. 1¼" quill dia. Direct V-Belt motor drive. Broad beams.

6—20'6" 3 SECTION LOOMS
Dual roller bearing cam motions. D.D. circular battens. 1¼" quill dia. Direct V-Belt motor drive. Broad beams.

4-1949 FLETCHER VENETIAN BLIND LOOMS
14 space, 4 shuttle. Direct motor drives.

1—1949 MODEL Q-3 Scott Tester

1—10 CAN S.S. FINISHING MACHINE—1951 Model
30' face. Chain driven. Ball bearing. Quetsch-Drive.

1—3 CAN FINISHING MACHINE
18" face, let-off, take-up, variable speed drive and calendar.

All items subject to prior sale. ***WRITE, PHONE OR WIRE FOR FURTHER INFORMATION.*** This is only a partial listing.

Wm. Rabinowitz & Sons
TEXTILE MACHINERY, BOBBINS & SUPPLIES
214 - 222 Hamilton Street Phone HEmlock 3-7497 3-7498 Allentown, Pa.

1 John Waldron 2-Roll Rubber Covered Calender
Roll Size 12" x 10'
R. Gelb & Sons, Inc. UNION, N. J. *Murdock 6-4900*

FOR SALE
One 30-spindle Lazenby K-Type
BOBBIN WINDER
Complete, Practically new.
FS-6261, Textile World
520 No. Michigan Ave., Chicago 11, Ill.

FOR SALE—LOCATED KILBURN MILL, TRYON, N. C.

11—Luther and Morrison Thread Glazers
2—Universal #44 Winders, Cone, ⅝" and 1⅝" Tube
22—Universal #50 Winders, King Spool, Cone, Doubler, ⅝" Tube
2—Obermaier 300# Stainless Steel Package Dyers, age 1948
2—Obermaier 100# and 300# Pressure Type Package Extractors
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72—C&K, C-4, 80", 4x1 AUTO CONV. TO 4x4 DOBBY

78—SPINDLES, WHITIN AUTO QUILLER

2—TERRELL BOBBIN STRIPPERS

1—JOHNSON SILK SYSTEM SLASHER, 74"x30", 7-DRUM S.S. WITH TEFLON

24—DRAPER 46" XD, DOBBY

2—SIPP 101" HI-SPEED ALL METAL WARPERS, WITH MAGAZINE CREELS

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2—B.C. KNOTTER

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Warpers • Winders & Quillers • Looms

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Large quantity in the Grieg and Dyed.

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330 W. 42 St., New York 36, N. Y.

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TEXTILE MACHINERY
THROUGHOUT THE WORLD!
GEORGE W. EGAN
"The Machinery Man Known Everywhere"
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WE SPECIALIZE IN FINISHING MACHINERY

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Also, Dry Cans of all sizes, Spare Pad Rolls and Calender Rolls, St. St. 150 Gals. heavy gauge mixing tanks.

A.C. & D.C. Motors from ¼ H.P. to 100 H.P. of all types.

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One 10 H.P. Boiler, 15 lb./sq in, natural gas fired

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FOR SALE—PRACTICALLY NEW

2—W&G Flatlock machines with stands and motors
1—Singer Bar Tack 69-8
1—Merrow 60B3D

MANUFACTURERS' OUTLET
Woburn, Massachusetts

WANTED

WARP TYING-IN MACHINES

2—Little Uster Machines, #2, 1948 with frames like new
2—LL Barber Colman 1951
2—LS Barber Colman
2—K Barber Colman

COTTON MACHINERY

16—H&B Cards, 37"
5—Single Process and other pickers, 37"
1—H&B, 5½ x 4½ Twister, Motor Drive
12—Card Grinders for 40" cards
4—Terrell Roving Bobbin Strippers
4—H&B Drawing Frames, 10" coilers
4—Warpers—2 B/C HW 2 Ent.
1200—10" Roving Cans

Send for more complete list

LOOM STOP MOTION DROP WIRES

100,000 KA Electric Hairpin, 7/16 x .008
300,000 KA Electric Hairpin, ⅜ x .006
750,000 KA Electric Hairpin, 9/32 x .008
100,000 KA Electric Machine Draw, 7/16 x .008
100,000 KA Electric Hand Draw, 7/16" x .008
1,000,000 KA Electric Hairpin, 11/16" x .008
1,500,000 C&K Electric Hairpin, 7/16 x .008

5,000,000 Sliding Bar Hairpin, 7/16 x .008
1,000,000 Sliding Bar Machine Draw, 7/16 x .008
3,000,000 Sliding Bar Hairpin, ⅜ x .008
3,000,000 Sliding Bar Hand Draw, 7/16 x .012

6,000,000 Regan Wires, all types

Send a sample of your drop wire for duplication

Heddles and frames, complete stop motions, battery parts, dobbys, arches, gears, beams, etc.

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Will buy your surplus and obsolete dyes and chemicals for cash.

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91 Oliver St. Boston, Mass.
Established 1919

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2—FOSTER SKEIN TO CONE WINDERS

4—6 SPINDLE UNIVERSAL #8 TUBERS

1—SCOTT MODEL Q TESTER 2000 LB. CAPACITY

1—16 SPINDLE SARGENT BALLING MACHINE

N. Y. C. REPRESENTATIVES FOR NEW UNIVERSAL WINDING CO. MACHINERY

Gaines
FOR BEST VALUES IN REBUILT TEXTILE MACHINERY

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ALSO

2—20 SPINDLE UNIVERSAL ROTOCONERS
2—SINGLE SPINDLE UNIVERSAL #6 TUBERS

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Used, in good condition

Ring Twister not less than 6" ring, approximately 120 spindles, double roller on top, 10" gauge for use on Dacron yarn.

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WANTED

1—Combination Bierer—Davis Oxygen and Air Aging Outfit with one or two bombs, and
1—Motor driven Air Compressor with filters.

W-6154, Textile World
330 W. 42 St., New York 36, N. Y.

THREE EXCEPTIONAL USED CANS

Diameter 108" Face 72"
Shell ¼" rolled stainless steel plate
Jacketed; siphon drainage
Steam pressure 50 lb/sq. in.; temperature 298°F
Journals 4 15/16" diam. tapped for rotary joints
Bearings: roller bearing pillow blocks
Gears: cut-tooth 104" P.D. with mating pinions
Condition: excellent. Location: Massachusetts
Weight: about 10,000 lbs. each
Loading cost: $250 on flat car for three

For drawings, inspection, or price communicate with

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Priced For Immediate Sale

FOSTER 30-SPINDLE B.B. WOOD TUBE WINDER, Model No. 102, 6" Traverse, Slub Catcher, Waxing Att. Underneath Supply, Each Side Driven by G.E. 2 HP Motors, 1740 RPM, FOB $600.

50 G.E. ¾ HP TEXTILE MILL MOTORS, 220/60/-3/1765 RPM, Type KT-121, FOB $9.50 each.

50 G.E. ½ HP TEXTILE MILL MOTORS, 220/60/-2/1200 RPM, Type KT-121, FOB $9.50 each.

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used and rebuilt
KNITTERS — RIBBERS — LOOPERS
CYLINDERS — DIALS — TRANSFERS
HOSIERY NEEDLES AND PARTS
JOS. BRESANI
N. W. Cor. Hancock & Somerset Streets
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BUHLMANN DYEING MACHINE

62 arm, twin type hydraulic, 15 units, complete with motor. Perfect condition.

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FOR SALE
25 DRAPER LOOMS

46" wide—like new—will sacrifice

OSTERNECK CORP.
179 W. Jefferson St. Phila. 22, Pa.

FOR SALE:

SACRIFICE:—30 Arm Porcelain Buhlmann Skein Dye Machine—Complete with Motors—Pumps—Tanks, Etc. Perfect Condition.

FS-5879, Textile World
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UNIVERSAL

High Speed Creel, 700 hundred double ends for both Cones & Pirns.

FS-6278, Textile World
330 W. 42 St., New York 36, N. Y.

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Cotton and Synthetic Spinning and Weaving

Real Estate: 350,000 sq. ft. brick mill buildings and warehouses.

MACHINERY:

2—Lines H & B Opening Blending and Bale Breaking—1946.
4—H & B Single Process Pickers, 40" wide—1946.
28—H & B Cards, 40" wide, 26" doffer, spindle back.
26—Whitin Model D Combers, 8 doublings.
6—H & B Hi-Draft Slubbers 10 x 5, 104 spdls.
8—Saco-Lowell Model FS-1 Slubbers, 8 x 4, 128 spdls.
10—Whitin L.D. Spin. Frames, 250 spdls., 3" ga., Tape.
48—H & B Spin. Frames w/Whitin Super Draft, 1952, 256 spdls., 3" ga.
16—H & B Spin. Frames w/Whitin L.D.—1948, 256 spdls., 3" ga.
16—H & B Spin. Frames w/Whitin L.D.—1948, 240 spdls., 2¾" ga.
32—H & B Spin. Frames w/SL Roth L.D.—1952, 288 spdls., 2¾" ga.
14—Whitin Twisters, 240 spdls., 3" ga., 2½" ring.
1—Barber-Colman Spooler, 306 spdls., Type C, Model KK.
1—Abbott Quiller, 120 spdls., w/hoist—1952.
354—Crompton & Knowles C6 Looms, 4 x 1 box, 52" r.s., motor, 1941.
68—Crompton & Knowles C6 Looms, 4 x 1 box, 60" r.s., motor, 1946.
158—Draper Model E Jacquard Looms, 40", 400 hook.
48—Draper XD Looms, 54" r.s., dobby, Diehl drive—1951.
24—Draper XD Looms, 54" r.s., dobby, motor, 1942.
4—Saco-Lowell Slashers, 2 cyl. 57", Brown controls.
10—Curtis & Marble Clip Spot Shearers, 57½" wide.
5—Sipp Horizontal Warpers with Creels.
1—Cocker Hi-Speed Warper 54½" wide, no creel.
1—Hygrolit Yarn Conditioner, Model AY—1949.
4—Barber-Colman Portable Tying-In Model—K and LL.
3—Foster Winders, Model #102, 120 spdls., springs, motor—1952.

DYEING AND FINISHING MACHINERY FOR SALE.

7—Van Vlaanderen Duplex Stainless Steel Dye Boxes, 6' and 8' wide.
1—Riggs Lombard Enclosed Stainless Steel Dye Box, 4' wide—1950.
1—Van Vlaanderen Palmer Tenter Unit, 60' long x 50" wide.
1—Werner, Heavy Duty Tenter Frame, 50' long x 60" wide.
1—Werner Pneumatic Padder, 50" wide, 2 rubber rolls—10 ton.
1—Van Vlaanderen Pneumatic Embossing Calender, 54", age 1952.
12—Morrison & Werner Dye Jiggs, 50" wide, stainless steel rolls.
1—Hurricane Loop Dryer, 40' long x 12' wide x 10' high, 4 fans.
2—Textile Open Width Washers, 78" wide, 3 compartments each.
2—Van Vlaanderen Quetches, 2 rolls, 60" wide.

REPUBLIC TEXTILE EQUIPMENT CO.
40 WORTH STREET NEW YORK CITY
REFINANCING · APPRAISALS · PURCHASE · SALE · LIQUIDATION OF MILL PROPERTIES

FOR SALE

1. 2—D & F 48" MIXING PICKERS, 6 Bar w/automatic feeder and oiler.
2. 2—DUESBERG-BOSSEN 48" PERALTAS.
3. 12—C & K 82" Wide W-3 LOOMS, M.D.
4. 8 WHITIN MODEL E WOOLEN SPINNING FRAMES, 6½ gauge, 5" ring, equipped with PNEUMAFIL, M.D.
5. 1 COOK DETWISTER w/Motor 1947.
6. 4—R & L Stainless Steel Piece, DYE KETTLES, 8', M.D.
7. 2—R & L Stainless Steel Piece, DYE KETTLES, 6', M.D.
8. 1 Todelo, fan dial, YARN GRAIN SCALE, Capacity, 650 Grains, 4 years old.
9. 1—Riggs & Lombard, DYE KETTLE, 2 years old, inside width 9' Reel, 42" diameter, solid drum, knurled all over. 12 strings. Totally enclosed, metal top, glass sides.
10. 2—Abbott Machine Company, 39 spindles each, AUTOMATIC FILLING WINDERS, equipped with automatic bobbin lift and dump and automatic bobbin feed. Excellent condition. Year 1948. Also complete with motors, starters, transformers and magnetic switches.
11. 1—Rodney Hunt Tru-Shade Piece DYE KETTLE, 10' wide, 7' from front to back and 5' deep with curved bottom and front partition. 28" diameter S.S. Reel, Motor driven.
12. 1—Riggs-Lombard, 72" Pneumatic CLOTH SQUEEZE ROLLS 18" diameter, Rubber rolls, Rolls reground, Ball Bearing Chain Drive, Like new.

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1—set 14 S.S. Dry Cans 60" x 23"—$2700.00
1—60' x 60" W & J Tenter Frame, S.S. Clips
1—V.V. 54" Hyspeed Tuber—$600.00
1—V.V. 65" Tuber—$550.00
1—50" 3-roll Silk Calender—$1600.00
1—set Mt. Hope Guides with adjustable stands—$225.00
12—Spindles (Whitin Schweiter) automatic quilling—$110.00 per spindle
1—Johnson 7 can Slasher—$1200.00
1—3-roll 68" Hydraulic 20 Ton Calender—$4000.00
1—10' S. S. Dye Beck—$500.00
1—V.V. 48" Decatizer, L-4 Nash Pump, Motors & Blanket—$1500.00
1—8' S. S. Dye Beck—$400.00
1—60" 2-rubber roll Quetch rubber roll expander, S.S. Pan—$650.00
2—Merrow Sewing Machines, table & motor—$100.00 each
1—2' and 1—4' S.S. Dye Beck
1—60" Hercules Extractor—$400.00
1—V.V. 50" Scutcher—$500
1—Palmer 63" steam jacketed #3 B.B. Reeves—$1500.00
2—Textile Squeeze Sets, 98" wide, 2 rubber rolls 19" & 12" Diam. roller bearings

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301-313 East 22nd St. (at 7th Ave.) Paterson, N.J.
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1—5 can Johnson 23" dia., 66" face, with quetch, size pan, beam take-up, motor driven. Operated by steam pressure. Excellent condition.

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FLETCHER (STANDARD) 15' 8"
BATTENS (STANDARD)
HARNESS FRAMES (STANDARD)
FIBRE HEAD SPOOLS
FS-6276, Textile World
330 W. 42 St., New York 36, N. Y.

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Surplus Equipment

Southbridge Massachusetts plant of **AMES TEXTILE CORPORATION**

1—Uxbridge Model A Gentle Air Slasher, 86" Headway complete, Age 1950
1—Allen High Speed Warper with Magazine Creel
1—Wamesit High Speed Warper with Creel
2—D&F 107" Cylindrical High Speed Metal Pinless Reels, Beamers, Magazine Creel Age 1948
3—Abbott Auto. Cone Winders 90 sp. ea. with Hoists
1—Foster Model 55 Doubler 7" Traverse
7—S—L Tape Dr. Twisters 200 sp. ea. 4" ga. 3" ring, M.D.
2—S—L Tape Dr. Twisters 200 sp. ea. 5" ga. 3" ring, M.D.
180—C & K 82" W-2 Worsted Looms, 1936—1944
1—Arlington 80" Stainless Steel 4 Bowl Crab 1947 Model
1—P & W 90" Face Wet Steamer Age 1949
1—H & W 2 Truck yarn conditioner
700 feet Westinghouse Bus Duct.
14 x 9 Draw Boxes, 10 x 5 Cone Reducers, 8 x 4½ Cone Rovers,
P-S & Lowell Ring Spinning Frames, Foster Cone Winders, Trucks, Scales, Supplies, etc.

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27—50" S/S VV Dye Jiggs.
1—72" Perkins (new) Bin Piler.
1—50" VV 3 Roll BB Calender.
1—50" Morrison 3 Roll Calender.
1—James Hunter 72"—4 Pass Pin Dryer Complete (in new condition).
Merrow Sewing Machines 60 D3B and 60 ABB complete with Motors & Tables.
2—66" face Birch Bros. Scutchers with Squeeze Rolls and MD.
1—S/S Cook P N Detwister with MD.
3—84" Cutiss & Marble Doublers & Tacking Machines with 1 HP 220/3/60 motors.
1—70" Elliott & Hall (Hooker) 1 yd. Folds.

Also Available: Dry Cans, Quetchers, Reeves Drives, Spare Calender Bowles, Motors, etc. *Write for Catalogue.*

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2—YARN CONDITIONING BOXES
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THROWING AND WEAVING EQUIP. FOR SYNTHETICS
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HOW TO USE. First, look in the table below and find the letter that designates the class of supply or service in which you are currently interested. Then consult in the index the page numbers that are followed by that letter.

A. Air Conditioning, Air Cleaning.
B. Building Construction and Maintenance, Paints, Yard Equipment, Water Supply
C. Chemicals and Dyestuffs
D. Cleaning Equipment
E. Dyeing, Finishing, and Cloth Room Equipment and Supplies
F. Electrical Equipment—Motors, Controls, Lighting, Etc.
G. Fibers, Yarns, Mills, Finishing Companies
H. Fluid Handling—Compressors, Pumps, Piping, Valves, Fittings
K. Instruments: Measuring, Metering, and Weighing Apparatus
L. Knitting-Mill Equipment and Supplies
M. Lubricants and Lubrication Equipment
N. Management Services—Factors, Consulting Engineers, Insurance, Personnel Facilities, Plant Sites, Etc.
O. Materials and components for Machinery and Equipment
P. Materials Handling, Packaging, and Shipping Facilities
Q. Power Generation and Transmission (see also Electrical Equipment)
R. Weaving and Warp Preparation Equipment and Supplies
T. Yarn-Production, Twisting and Winding Equipment and Supplies

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Acme Steel Co.	66	P
Acrometal Prods., Inc.	147	T
Allen Mfg. Co.	218	O, T
Allis-Chalmers Mfg. Co.	20-21	F, Q
American Air Filter Co., Inc.	72	A
American Aniline Products Inc.	67	C
American Crayon Company	244	E, L, R
American Lava Corp.	169	L, RT
American Monorail Co.	224	P
American Pulley Co.	61	Q
American Schweiter Co.	30	T
American Steel & Wire Div.	225	O
American Viscose Co.	212-213	P
Antara Chemical Div., General Aniline & Film Corp.	35	C
Appleton Machine Co.	233	E
Armco Steel Corp.	237	O
Armstrong Cork Co. (Cots)	28-29	T
Armstrong Cork Co. (Roll Covering)	223	T
Askania Regulator Co.	168	E, K
Atkinson, Haserick & Co.	128, 130	T
Atlantic Rayon Corp.	222	G
Atlas Electric Devices Co.	170	K
Bahnson Co.	44	A
Barber-Colman Co., Textile Div.	243	R
Barco Mfg. Co.	10	H
Bemis Bro. Bag Co.	200	P
Borden Co., The Chemical Div.	190	C
Brainard Steel Div. Sharon Steel Corp.	37	P
Bristol Co., The	24-25	K
Caldwell Co., W. E.	249	B, E
Celanese Corp. of America Chemical Div.	74	C
Yarn Div.	209	G
Charlotte Chemical Lab., Inc.	246	C
Chemstrand Corp., The	201	G

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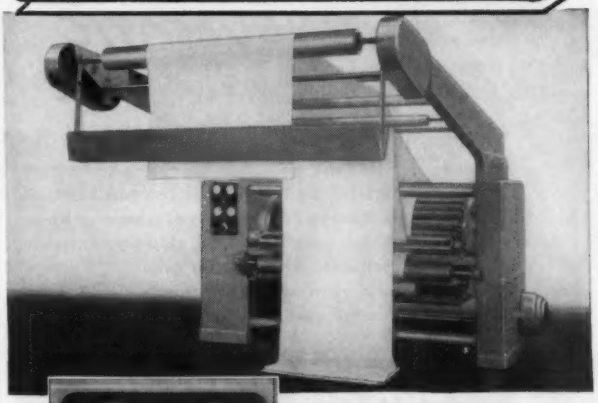
PLUS smoothness, PLUS nap density

is hard to believe



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Just say you would like to see a Hi-Torc Napper in operation. We'll do the rest.

DAVID GESSNER CO.

WORCESTER, MASS.

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GESSNER *takes the* **GUESSWORK** *out of napping*

Out with
LINT-FLY *and* **TRASH..**
from your
SPINNING FRAMES
and ROVING FRAMES

DO IT QUICKLY, ECONOMICALLY
with the Amazing

M-B AMOSKEAG PNEUMATIC ROLL PICKER

MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

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WATER-DIRT *and* **SLUDGE**
KEEP AIR DRY AT ALL TIMES
USE THIS AMAZING COMBINATION
AND GUARD YOUR PNEUMATIC SYSTEM

M-B *AUTOMATIC WHIRL-A-WAY* **AIR LINE FILTER**
MODEL W-1

RIBBON TYPE FILTERING UNIT removes solids .00039 and larger. Transparent plastic bowl makes filtered foreign matter visible. Gives maximum protection to all types of Lint Blowers, Blow-off Hoses and various air-operated controls.

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Ejects water automatically. Operates upon accumulation of 3 to 4 ounces. Discharges in less than 5 seconds. Assures dry air in pneumatic system at all times. Non-corrosive throughout. Weighs less than 5 pounds.

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Clinton Foods Inc., The	194	C, R
Cole Mfg. Co., R. D.	202	B, E
Colgate-Palmolive Co.	18	C
Columbia-Geneva Steel Div.	225	O
Columbia-Southern Chem. Corp.	171	C
Corn Products Refining Co.	62	C
Courtaulds Inc.	219	G
Crane Co.	80	H
Crompton & Knowles Loom Works	13	R
Crompton-Richmond Co., Inc.	241	N
Crucible Steel Co.	60	O
Curlator Corp.	69	T
Curtis & Marble Mach. Co.	184	E
Custom Scientific Instruments Inc.	240	K
Cutler-Hammer, Inc.	56	F
Darnell Corp., Ltd.	208	P
Dary Ring Traveler Co.	214	T
Dayton Rubber Co., The Textile Div.	38-39	RT
Deutscher Spinnereimaschinenbau, Ingolstadt	249	T
Diehl Mfg. Co.	49	F, Q
Dinsmore Mfg. Co.	240	E
Dobeckmun Co., The	205	G
Dolge Co., C. B.	208	B
Dommerich & Co., Inc., L. F.	34	N
Dow Chemical Co.	199	C
Draper Corporation	1, 143	R
Drew & Co., E. F.	149	C
duPont de Nemours & Co., E. I. Dyestuff Dept.	71	C
duPont de Nemours & Co., E. I. Electrochemical Dept.	203	C
Engineered Plastics Inc.	188	T
Eriez Mfg. Co.	17	T
Fiske Bros. Refining Co., Lubriplate Div.	234	M
Fletcher Works Inc.	231	T
Foster Machine Co.	141	T
Frankl Associates	241	R
Garland Mfg. Co.	180	R
Gastonia Roller, Flyer & Spindle Co., Inc.	244	T
Gates Rubber Co.	26	Q
General Chemical Div., Allied Chem. & Dye Corp.	14	C
General Electric Co.	76-77	F
Gessner Co., David	259	E
Ginsberg Mach. Co., Inc.	245	E
Goodrich Chemical Co., B. F.	40	C
Graphite Metallizing Corp.	228	O, Q
Guider Specialty Co.	230	E
Gulf Oil Corp.	36	M
Gurley, W. & L. E.	248	K
Haertel Co., Walter	232	P
Hartford Mach. Screw Co.	181	T
Harwood & Son, Geo. S.	210	T
Haskell-Dawes Mach. Co., Inc.	236	T
Hinde & Dauch	79	P
Howard Bros. Mfg. Co.	52	T
Hunt Machine Co., Rodney	63	E
Huyck & Sons, F. C Noone Industrial Fabrics Div.	242	E
Hyatt Bearings Div., General Motors Corp.	134	O, Q
Industrial Rayon Corp.	22-23, 82	G
Industrie-Werke-Karlsruhe	247	E
Jacobs Northern & Southern Div., E. H.	164	R
Johnson Corp., The	246	H
Keever Starch Co.	191	C
Kidde & Co., Inc., Walter	211	T
Kidde Mfg. Co., Inc.	50, 229	L
Klauder-Weldon-Giles Mach. Co.	8	E
Kuljian Corp., The	251	N

Lane & Bros. Inc., W. T.	262	P
Laurel Soap Mfg. Co., Inc.	200	C
Link-Belt Co.	7	Q
Lockwood Greene Engineers, Inc.	70	N
Loper Co., Ralph E.	250	N
Lubriplate Div., Fiske Bros. Refining Co.	234	M
Main & Sons, Inc., Robt. A.	250	T
MAK Maschinenbau Kiel	68	T
Malina Co.	222	G
Manhattan Rubber Div.	54	Q
Marquette Metal Prods. Co.	154	T
Mathieson Chemicals Olin Mathieson Chem. Corp.	2	C
M-B Products	260	T
McBride, Ed. J.	6	R
Meese, Inc.	261	P
Miller Fluid Power Co.	65	E H O
Minneapolis-Honeywell Reg. Co. Industrial Div.	216-217	K
Monsanto Chemical Co., Inorganic Chemical Div.	183	C
Plastic Div.	57	C
Mount Hope Machinery Co.	247	E
Muller, Jakob	241	R
Nash Co., J. M.	198	RT
National Aniline Div., Allied Chem. & Dye Corp.	33	C
National Ring Traveler Co.	58	T
National Tube Div.	225	H O
Naugatuck Chemical Div. U. S. Rubber Co.	53, 189	C
Nitrogen Div., Allied Chem. & Dye Corp.	51, 187	C
Noone Ind. Fabrics Div. of F. C. Huyck & Sons	242	E RT
Nopco Chemical Co.	179	C
Oakite Products, Inc.	248	C
Oilgear Co., The	31	H Q
Olin Mathieson Chem. Corp Industrial Chemicals Div.	2	C
Onyx Oil & Chem. Co.	81	C
Ordnance Gauge Co.	196	L
Page Fence Association	196	B
Parks-Cramer Co.	48	A D
Perfecting Service Co.	202	H
Pittsburgh Corning Corp.	177	B
Platt Bros. Sales Ltd.	130	T
Powell Co., Wm.	138	H
Powell Valves	138	H
Proctor & Schwartz Inc.	64	E R
Pure Oil Co.	27	M
Raybestos-Manhatten, Inc., Manhatten Rubber Div.	54	Q
Reeves Pulley Co.	167	Q
Refined Products Co.	2nd Cover	C
Reiner, Inc., Robert	132	R
Reliance Elec. & Eng'g. Co.	78	F Q
Robbins & Myers, Inc.	75	H
Rohm & Haas Co.	185	C
Rollway Bearings Co., Inc.	239	O Q
Ross Engineering Corp., J. O.	178	A E
Ryerson & Son Inc., J. T.	198	O
Saco-Lowell Shops	19, 136	T
Sargent's Sons Corp., C. G.	176	E
Scherr Co., Inc., George	251	K
Schlafhorst & Co., W.	11	RT
Schlumberger & Cie.	245	T
Schweiter Ltd.	30	T
Shell Oil Co.	59	M
Shore Instrument & Mfg. Co., Inc.	250	K
Sirrine Co., J. E.	3rd Cover	N
SKF Industires, Inc.	235	O Q
Smith, Drum & Co.	12	E
Societe Alsacienne De Constructions Mecaniques	128	T
Solvay Process Div., Allied Chem. & Dye Corp.	195	C
Sonoco Products Co.	41	T
Southern Shuttles Div., Steel Heddle Mfg. Co.	46-47	B
Spaulding Fibre Co., Inc.	173	P T

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Square D Co.	163	F
Standard Chemical Prods., Inc.	193	C
Standard Pressed Steel Co.	251	O
Steel Heddle Mfg. Co.	46-47	R
Sterling Electric Motors	226	F
Stop-Motion Devices Corp.	249	L
Stowe-Woodward, Inc.	153	E
Super Tufter Machinery Co.	215	E
Supreme Knitting Mach. Co., Inc.	207	L
Taylor Co., Halsey W.	204	N
Taylor-Stiles & Co.	206	T
Tennant Co., G. H.	192	D
Tennessee Coal & Iron Div.	225	O
Texas Co., The	4th Cover	M
Textile Machine Works	84	L
Toledo Scale Co.	182	K
Tompkins Bros. Co.	204	L
Torrington Co., The (Bearings)	197	O Q
Torrington Co., The (Needles)	175	L
Towmotor Corp.	174	P
Trane Co., The	42-43	A
Turbo Machine Co.	5	L
US Bobbin & Shuttle Co.	9	RT
U. S. Ring Traveler Co.	210	T
U. S. Rubber Co.		
International Div.	238	G
Naugatuck Chemical Div.	53, 189	C
U. S. Steel Corp.	225	O
U. S. Steel Supply Div.	225	O
Universal Winding Co.	32, 150	T
Utica Novelty & Mill Specialty Co.	242	E L
Veeder-Root, Inc.	55	K
Versenes Inc.	172	C
WAK Industries	249	K
Waldron Corp., John	186	E
Warner & Swasey Co.	45	T
Wayne Mfg. Co.	208	T
Westinghouse Electric Corp.		
Micarta Div.	220-221	O
Whitin Machine Works	16	T
Wildman Mfg. Co.	227	L
Wood's Sons Co., T. B.	73	Q

PROFESSIONAL SERVICES

Fishburne, B. P.	254
Kuljian Corp.	251
Lockwood Greene Engineers Inc.	70
Loper & Co., R. E.	250
Main & Co., Charles T.	250
Sirrine & Co., J. E.	Third Cover

SEARCHLIGHT SECTION
(Classified Advertising)
H. E. Hilty, Mgr.

EMPLOYMENT

Positions Vacant	252, 254
Selling Opportunities Offered.	254
Positions Wanted	254
Selling Opportunities Wanted.	254
Employment Services	252

EQUIPMENT
(Used or Surplus New)

For Sale	253-258

WANTED

Equipment	256
Miscellaneous	256

ADVERTISERS INDEX

Acorn Corp.	257
Bialek Co., Inc., Theodore	256
Blank Co., Inc., A & M.	258
Bresani, Joseph	257
Brush Electronics Co.	252
Celanese Corp. of America	252
Chemical Service Corp.	256
Dunn Corp.	257
Egan Inc., George W.	256
Fitzgerald, James E.	255
Flynn, Jr., George D.	258
Gaines Textile Machinery Co.	256
Gelb & Sons, R.	255
Industrial Products of America.	253
IPA Southern Inc.	253
Jaswell & Son Inc., Peter.	258
Kent, Wm. R.	257
Machinery Liquidating Co., Inc.	257
Machinery Sales Corp.	256
Manufacturer's Outlet	256
McDowell Assoc., Inc.	254
Miller Machinery Co.	256
New England Products Co.	256
Osterneck Corp.	257
Pennsylvania Spool & Equipment Co.	258
Rabinowitz & Sons, Wm.	255
Raymond Service Inc., Charles.	252
Republic Textile Equipment Co.	257
Richard Sales	254
Textile Auxiliaries	256
United States Rubber Co.	254

Illustration By John Tenniel, From "Through The Looking-Glass," By Lewis Carroll

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